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montana energy almanac

Prepared by
Gail Kuntz, Consultant

February 1979

Department of Natural Resources and Conservation
Ted J. Doney, Director

Energy Division
Bob Anderson, Administrator

32 S. Ewing
Helena, Montana 59601
(406) 449-3780

PREFACE

The *1978 Montana Energy Almanac* is an energy reference source for the Montana public, the 1979 Legislature, and all other persons interested in obtaining information concerning Montana's energy legislation, policies and programs. The almanac also contains summaries of Montana energy production, consumption and supply data, prospective energy development plans, and pertinent regional, federal and private-sector energy-related activities of concern to the state. The information has primarily been summarized from the programs, staff activities and data files of the Department of Natural Resources and Conservation, excepting the descriptions of energy-related programs and activities in other executive departments of state government, local government, and private sector organizations; each agency or private organization provided the material describing it in the text. Montana's energy legislation is summarized from the Revised Codes of Montana and from material presented in the Environmental Quality Council's publication, *Montana Environmental Index.*

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ABBREVIATIONS

acre-feet	acre-ft
billion cubic feet	billion ft^3
British thermal unit	Btu
cubic feet per second	ft^3/s
kilovolt	kV
kilowatt hour	kWh
megawatt	MW
megawatt hour	MWh
million cubic feet	mm ft^3
million tons per year	mmt/yr

1

INTRODUCTION

The policies, legislation and programs summarized in this document are the State of Montana's response to one of the most significant public concerns of the 1970's—the need to supply the basic energy requirements of the citizenry while insuring preservation of Montana's quality of life and planning for a more secure energy future.

Montana faces many of the same energy problems which confront the rest of the nation, including rising prices, uncertainty of supply and the need to plan for an energy future based on cost effective consumption patterns and technologies. Concurrently with these problems, however, the state is confronted with major regional and national demands for its fossil fuel reserves. The extraction, conversion and transportation of these energy resources impacts the people and the land in numerous ways, many of which are undesirable.

During the last six years Montana has enacted laws to ensure that the energy developments responsible for these impacts receive full public review and detailed study before approvals are granted. Montanans are willing to share their energy resources, but those regions which require additional energy must, in turn, be willing to assume their share of energy conversion impacts. Many Montanans are seeking ways to equitably distribute energy-related impacts as well as insisting upon just compensation for use by others of the state's resource wealth. Montana's export preference policy and coal severance tax are central features of this stance.

While the state has been decisive in its commitment to protect its natural resources and the agriculturally-based economy which sustains its quality of life, regulatory policies and programs have historically been reactive to plans that others have devised and proposed. State initiative in the area of energy planning can improve the state's ability to make better and more informed decisions.

In his energy message to the 1977 Legislature, Governor Judge stated that Montana has been the nation's leader in design and enforcement of environmental safeguards, but that in the future, "Montana should become the nation's leader in conservation of its energy resources and elimination of waste in their usage. ...The number one priority and the basic cornerstone of our energy policy must be reduction of energy demand; any other course is ultimately suicidal." The Governor has also stated the administration's belief that "the only permanent solution to the energy problem lies in the development of renewable, alternative energy sources." Conservation and renewable energy sources are central features of a number of the state energy programs described in this report.

Although Montana's energy reserves, particularly coal, are massive, the supply of fossil fuels is finite. Their recovery also involves many adverse impacts. Cogeneration and decentralized, renewable energy resources offer an alternative to traditional fossil fuel energy sources. Montana is participating in solar and geothermal planning efforts and renewable resource demonstration projects in an effort to realize the potential of these energy alternatives.

On numerous occasions the Governor has noted that "conservation and renewable resources should be established as cornerstones for regional as well as

state energy policies." Montana has many economic and energy supply interconnections with its neighbors, particularly the Pacific Northwest, and it has joined with them in exploring long term energy policies and planning mechanisms. The problems cannot be solved at the state level alone. However, the Pacific Northwest energy planning process must be politically accountable to all of the region's citizens and must reflect each state's right to reasonable control of the development of its own resources. Montana's participation in this process is and will continue to be a critically important issue.

The following four sections of this report will describe Montana's present energy production and consumption situation, prospective energy development plans, the legislation the state has enacted to establish the framework of an energy policy, and the programs implementing that legislation. Certain prospective federal energy statutes which would have an important effect on state energy activities are summarized as well.

The national emphasis on seeking solutions to energy-related problems is reflected by the presence of a large number of regional and federal energy projects and planning efforts in Montana and other western states. Sections 6 and 7 summarize activities of regional and federal organizations and projects which have an important impact on Montana. At the regional level these include organizations such as the Western Governor's Policy Office, the Western Solar Utilization Network, and the Western Information Network on Energy and cooperative efforts of the Pacific Northwest states to address regional energy planning problems. The U.S. Department of Energy, created in October 1977, will be responsible for a majority of federal energy-related programs in the future; however, many of the agencies in the Department of the Interior (i.e., Bureau of Indian Affairs, Bureau of Land Management, Bureau of Reclamation, Fish and Wildlife Service, Geological Survey, Office of Surface Mining, Reclamation and Enforcement), the U.S. Army Corps of Engineers and the U.S. Forest Service have a significant influence on energy-related activities in Montana due to the large amount of federally managed acreage and hydroelectric facilities in the state.

Section 8 summarizes initial efforts of local government in energy planning-related areas, with emphasis on the activities undertaken by the City of Helena. There is great potential for effective energy planning at the local level, particularly in the area of energy conservation and development of renewable, decentralized sources of energy supply.

Section 9 discusses energy-related organizations in Montana's private sector, including the Montana Energy and MHD Research and Development Institute (MERDI), National Center for Appropriate Technology (NCAT), citizen groups, utilities and Indian tribes. MERDI and NCAT are conducting major national research studies to develop more efficient and/or renewable energy technologies as well as numerous energy projects specifically related to Montana. Citizen organizations are contributing to energy planning and decision-making processes. Montana's utilities are expanding their energy planning activities to include a number of innovative programs which emphasize conservation, renewable and alternative energy sources and cooperative projects with state and private groups. Montana's Indian tribes also exercise an important influence on energy activities in the state.

Section 10 presents a status summary of Montana energy issues, with emphasis on events that have occurred during the past year. These include Colstrip Units 3 and 4, the coal severance tax challange, the nuclear initiative, coal slurry pipelines, and the export preference policy.

MONTANA ENERGY PRODUCTION, CONSUMPTION AND SUPPLY

Much of Montana is underlaid with significant reserves of fossil fuels which have accounted for the state's historic and continuing role as a major energy producer and exporter. The location of these reserves as well as electric energy facilities, pipelines, oil refineries and other facilities are shown in Figure II-A. According to annual statistics published by the American Gas Association, Montana's total identified subbituminous coal resource is an estimated 176.8 billion tons and the estimated lignite resource is 112.5 billion tons, or 36 percent and 24 percent, respectively, of known United States reserves. Coal probably accounts for most of the state's known fossil fuel reserves; however, crude oil and natural gas reserves have yet to be fully defined. in addition, Montana's rivers are an important source of energy, providing about 1931 MW or approximately 63 percent of the state's presently installed electric generating capacity.

Figure II-B depicts Montana's historic energy production from 1960 through 1977 by fuel type; 1976 and 1977 production volumes for the various fuels and hydroelectric energy generation are listed in Table II-1. Total energy production reached 741.4 trillion British thermal units (Btu's) in 1977 compared to 728.3 trillion Btu's in 1976.

TABLE II-1
COMPARATIVE MONTANA ENERGY PRODUCTION[1]

Energy Type	1976	1977	Unit of Measure
coal and lignite	26,180,671	27,393,439	tons
crude oil	32,814	32,680	1000 barrels
natural gas	45,098	47,235	million ft^3
net hydroelectric generation	12,406,000	8,459,754	MWh

Source: *Montana Historical Energy Statistics* (Montana Energy Office, 1978)

[1] Fossil-fired electric generation is not included because this would "double-count" the coal resource.

Montana currently produces well over two and one half times as much energy as it consumes; however, per capita gross energy consumption is significantly higher than the national average, primarily due to the state's small, geographically dispersed population and relatively high industrial energy consumption. Figures II-C and II-D illustrate historic energy consumption by sector and energy type, respectively. Consumption increased about three percent between 1975 and 1976, reaching a total of 278 trillion Btu's in 1976. Comparable 1977 data are not yet available.

Industry, Montana's fastest growing consumption sector, accounted for 43 percent of total energy consumed in 1976. Agricultural energy consumption is included in the residential-commercial sector. Montana consumes more energy in the form of petroleum products than any other energy form, with use of motor gasoline for private and commercial transportation constituting the largest share of the demand.

Montana's energy import-export situation is based on a number of factors including intra- and interstate market influences, limitations of existing energy transportation facilities (particularly oil pipelines), and resource ownership, as well as electrical energy flows and management patterns. The relative balance of energy production, consumption, imports and exports, excluding electrical energy, is shown in Figure II-E.

2.1. COAL

During the 1972-77 period, Montana's annual coal production increased nearly 350 percent, while the annual volume of natural gas, crude oil and hydroelectric production remained relatively constant. However, coal comprises only a small percentage of the energy consumed in Montana. As illustrated by a comparison of Figures II-B and II-D, in 1976 coal accounted for 62 percent of total energy production, but only 15 percent of consumption. Montana's coal use is primarily for electrical energy generation. Approximately 90 percent of Montana's 1976 coal production was exported to other states.

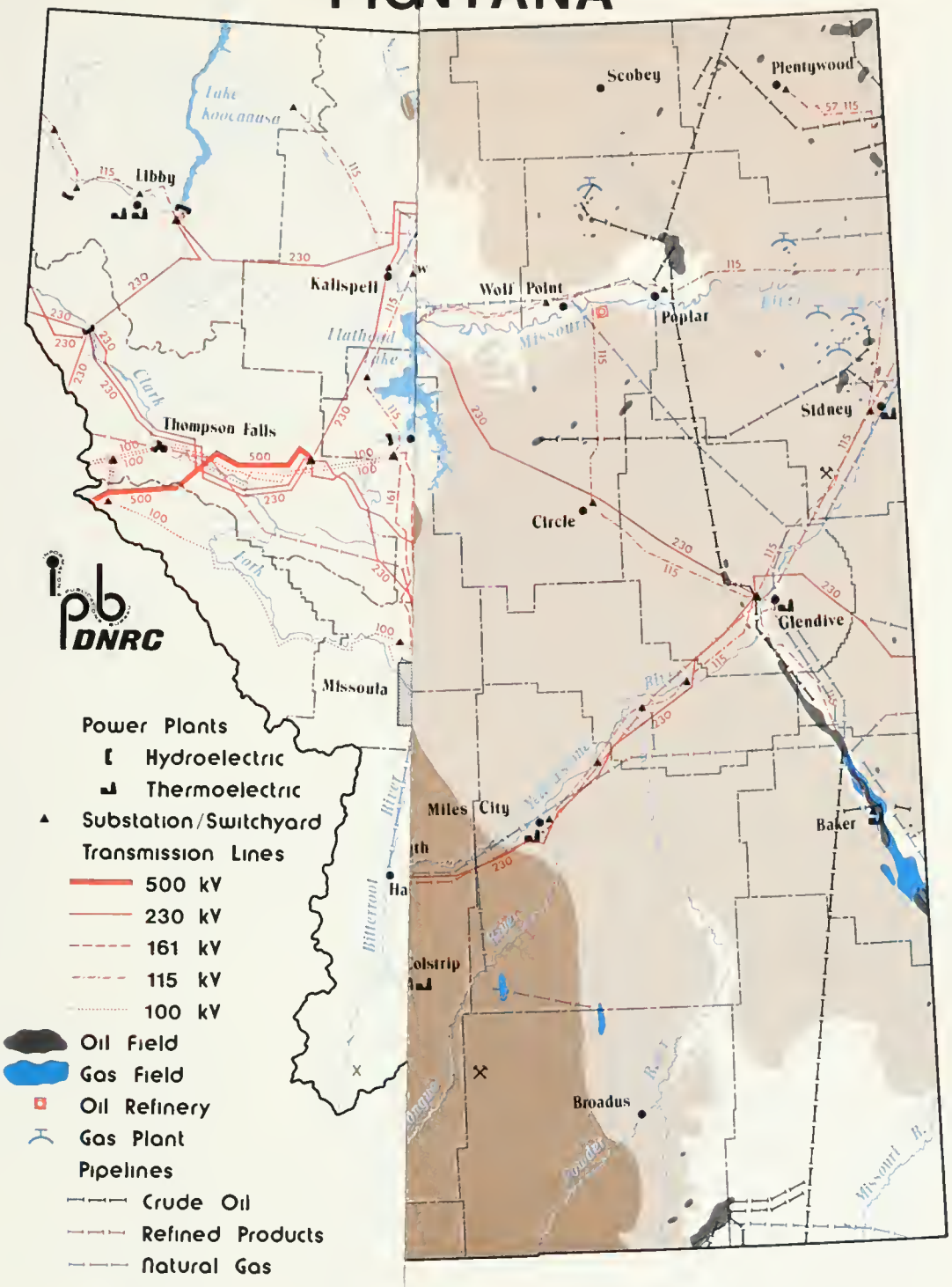
2.2 CRUDE OIL

Of the 32,814,000 barrels of crude oil produced in Montana in 1976, 65 percent was exported, due in part to the fact that two of the most significant production areas, the Williston and Powder River basins, are not connected to the state's major refineries in Billings. Instead, the crude from these areas is shipped out of state. The Billings refineries, which account for nearly 90 percent of Montana's total refined petroleum product output, are heavily dependent on Canadian and Wyoming imports. Of the 48,297,000 barrels of crude refined in Montana in 1977, 43.3 percent came from Canada, 37.8 percent from Wyoming and 18.5 percent from Montana. Canadian crude made up 49 percent of the Billings area supply as of January 1, 1978. Nearly one half of the petroleum products refined in the state are exported, primarily to Washington, Idaho, Wyoming and North Dakota.

Crude oil has been Montana's most worrisome energy supply problem because allocated Canadian exports are expected to cease. The target date was 1981, but in October 1978 the Canadian government announced that its most recent resource inventory study indicated that crude oil supplies are sufficient to continue exports at the present rate until 1982. The proposed Northern Tier Pipeline, discussed in Section 3.1.5.1., presents a potential long term supply solution, although the three Billings refineries will be forced to adjust their processes to accommodate the heavier chemical composition of Alaskan crude. Short term supply options to meet Montana's demand prior to availability of Alaskan oil include swap arrangments, whereby Canadian crude will be made available in exchange for United States crude provided through midwest supply points, truck or unit train transport, and rearrangement of domestic crude oil movements in the Wyoming-Montana-North Dakota area.

As of January 1, 1978, the Montana Oil and Gas Conservation Division estimated Montana's proven crude oil reserves at 233 million barrels.

MONTANA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Plentywood
Libby
Kalispell
Wolf Point
Poplar
Sidney
Thompson Falls
Circle
Glendive
Missoula
Miles City
Baker
Colstrip
Broadus
DNRC
Power Plants
Hydroelectric
Thermoelectric
Substation/Switchyard
Transmission Lines
500 kV
230 kV
161 kV
115 kV
100 kV
Oil Field
Gas Field
Oil Refinery
Gas Plant
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Crude Oil
Refined Products
Natural Gas
Coal Fields
Bituminous
Sub-Bituminous
Lignite
Lignite in Tertiary Beds
Active Coal Mine

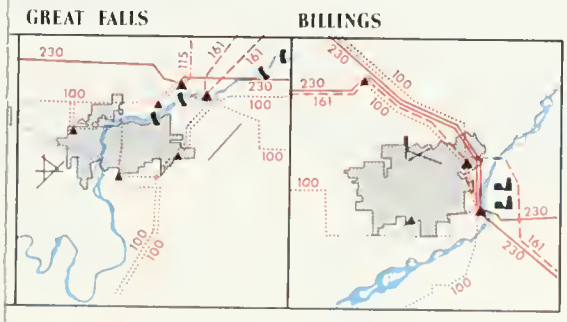
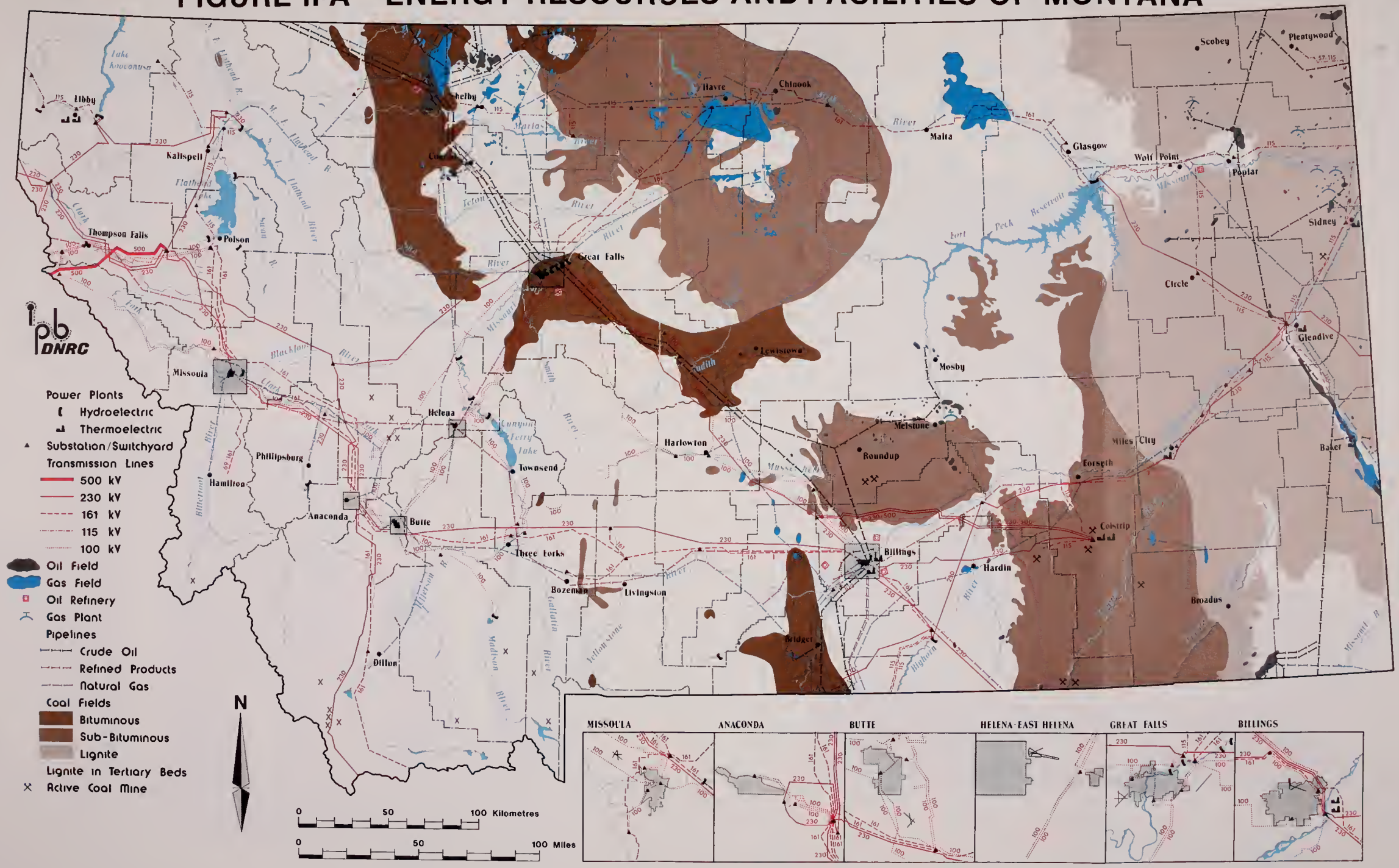

GREAT FALLS
BILLINGS

FIGURE II-A ENERGY RESOURCES AND FACILITIES OF MONTANA



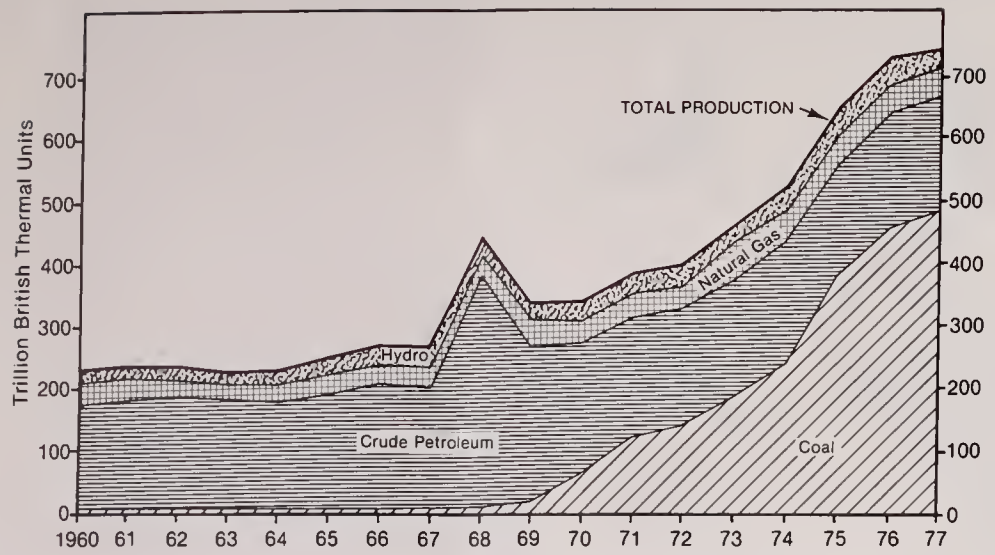


FIGURE II-B PRODUCTION OF ENERGY IN MONTANA, BY TYPE OF FUEL

Source Montana Energy Office, *Montana Historical Energy Statistics*, 1978

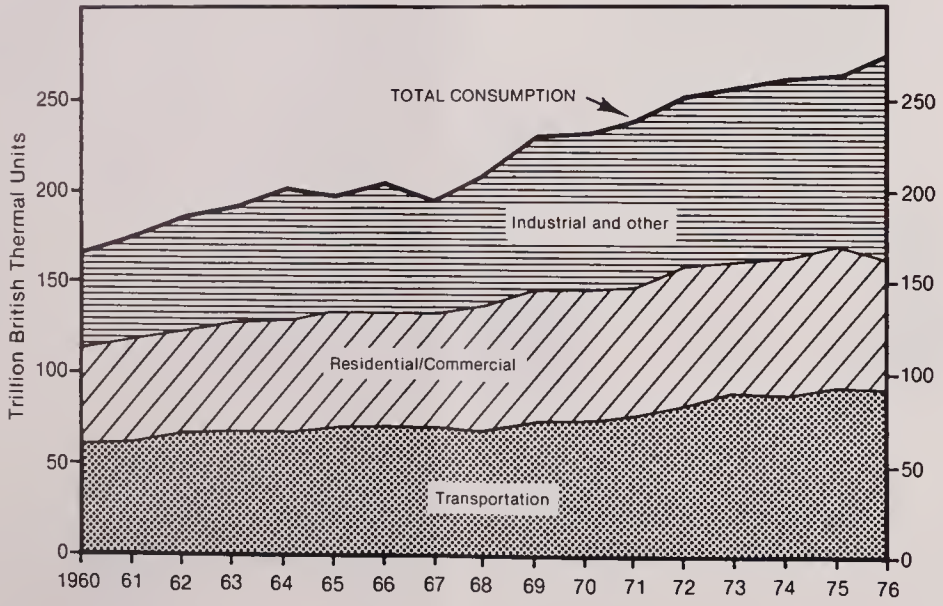


FIGURE II-C CONSUMPTION OF ENERGY IN MONTANA, BY SECTOR

Source Montana Energy Office, *Montana Historical Energy Statistics*, 1977

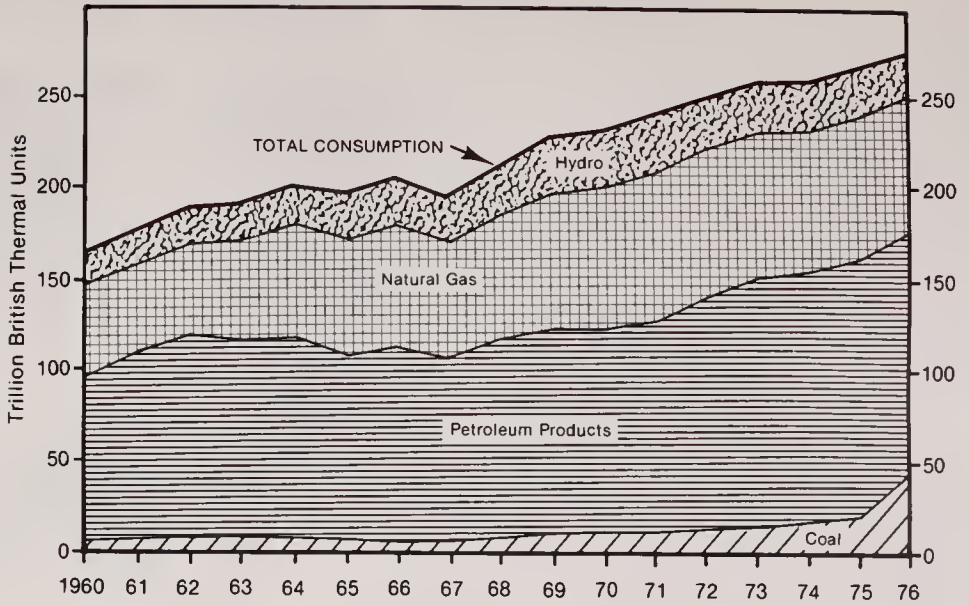


FIGURE II-D CONSUMPTION OF ENERGY IN MONTANA, BY TYPE OF FUEL

Source Montana Energy Office, *Montana Historical Energy Statistics*, 1977

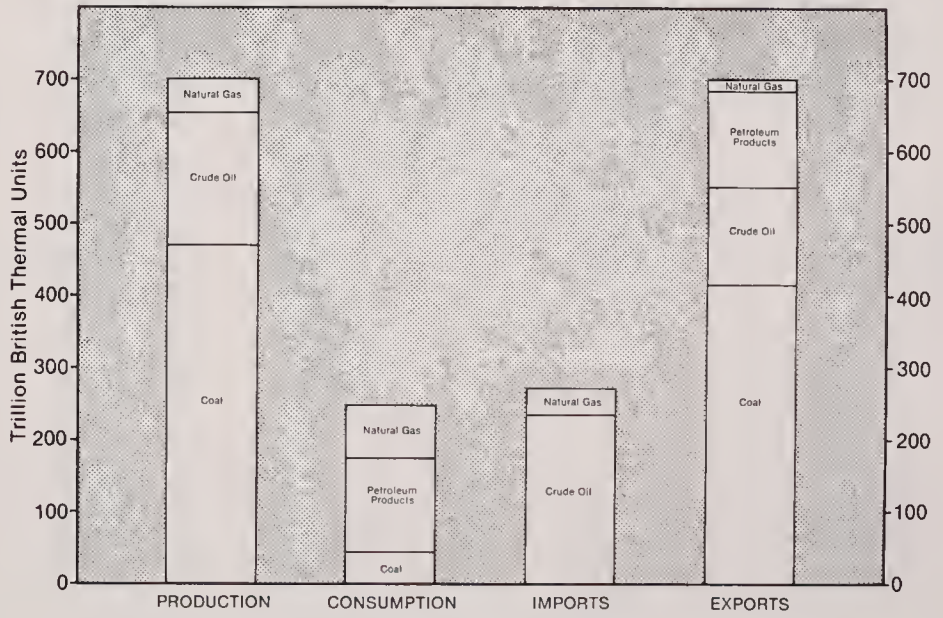


FIGURE II-E PRODUCTION, CONSUMPTION, IMPORTS AND EXPORTS OF FOSSIL FUELS IN MONTANA IN 1976

Source Montana Energy Office, *Montana Historical Energy Statistics*, 1977

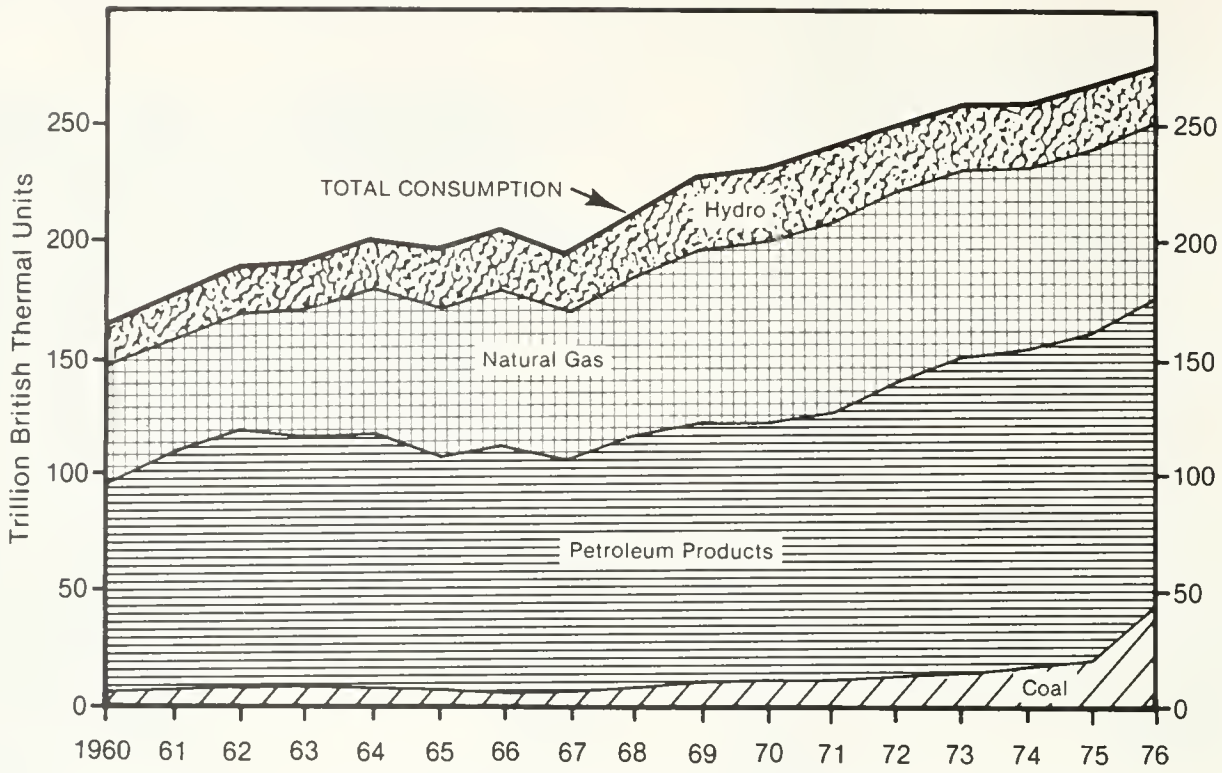


FIGURE II-D CONSUMPTION OF ENERGY IN MONTANA, BY TYPE OF FUEL

Source Montana Energy Office, *Montana Historical Energy Statistics*, 1977

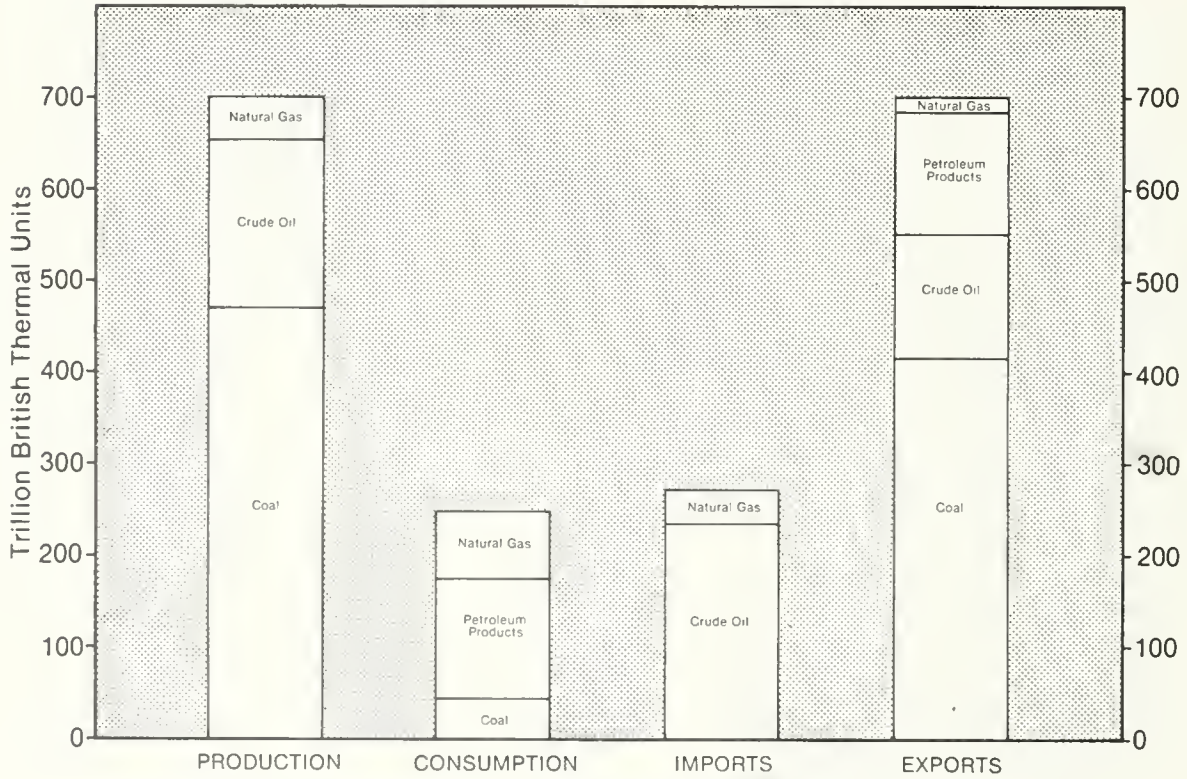


FIGURE II-E PRODUCTION, CONSUMPTION, IMPORTS AND EXPORTS OF FOSSIL FUELS IN MONTANA IN 1976

Source Montana Energy Office, *Montana Historical Energy Statistics*, 1977

2.3 NATURAL GAS

In 1976 Montana's natural gas consumption totaled 70,376 million cubic feet, a ten percent decrease from the previous year. Residential and commercial sector customers consumed 56 percent of the total and industrial customers used the remainder.

Montana Power Company (MPC) provides roughly two-thirds of Montana's total natural gas sales and sales for resale to the western two-thirds of Montana and Montana-Dakota Utilities Company (MDU) supplies the approximate remaining third to the eastern third of the state. Approximately 47 percent of the 44 billion cubic feet (bcf) MPC distributed in 1976 came from Montana. The remainder of MPC's gas is imported from Canada, much of it from MPC's Canadian subsidiaries. Uncertainty of Canadian supplies, higher gas prices, loss of industrial customers and voluntary conservation precipitated a 13 percent reduction in demand for gas in the MPC system between 1975 and 1976. However, the company's acquisition of further in-state reserves, potential availability of new Canadian reserves, and a potential future share of Alaskan gas have assured the company's supply for the foreseeable future.

MDU, an interstate gas utility, sells about 20 bcf of gas annually in Montana, 40 percent of which is produced in Montana and the remainder of which is produced in Wyoming. MDU's industrial customers are being required to curtail demand by 30 percent by 1980 due to supply shortages foreseen in 1976. However, the Federal Energy Regulatory Commission is allowing the company to add 4000 new residential and commercial customers per year provided that it adds 30 bcf per year to its reserves. The company added 35 bcf in 1977 and has access to sufficient additional reserves to alleviate its supply shortage.

Northern Natural Gas Company produces gas in Montana's highline counties for export. In 1976 the total was 14.6 bcf, a somewhat lesser amount than in previous years.

Low in-state gas prices in the past did not foster vigorous drilling and exploration activity in Montana, but development of new wells has been increasing dramatically in recent years. There is active exploration in the Williston Basin of eastern Montana and in the Overthrust Belt of western Montana; however, in 1977, 109 fewer exploratory and development wells were drilled than in 1976. The American Gas Association estimates Montana's 1976 recoverable gas reserves at 1,106 trillion ft^3. Undiscovered reserves have been estimated at from 3.12 trillion ft^3 to as much as 7.06 trillion ft^3, depending primarily on the resource potential of the Overthrust Belt in Western Montana.

The Overthrust Belt is predominantly in federal ownership. Significant discoveries have been made in the Overthrust area in Canada, Wyoming and Utah and development interest in Montana is considerable, but much of the area is unroaded and provides a wide array of natural environmental values. The U.S. Forest Service reports that federal agencies have lease applications for 3.5 to 4 million acres in the area, but until certain management decisions are made, particularly the RARE II wilderness designation process, the applications will not be processed.

2.4 ELECTRICITY

Montana presently has slightly over 3,056 MW of installed electric generating capacity, of which 1,931 MW is hydropower, 939 MW coal-fired, 69 MW oil/gas, approximately 30 MW gas and 25 MW diesel. Total electricity generated from all facilities in 1977 was 13,473,220 megawatt-hours (MWh). Hydroelectric generation, at 8,459,754 MWh, was down about 22 percent from 1976 (a reflection of low water conditions) and accounted for about 62 percent of total generation. Coal-fired generation totaling 4,998,036 MWh comprised most of the remainder. In terms of electric generating facility ownership, 1976 electric generation is shown in Table II-2. Total Montana electric sales to ultimate consumers totaled 10,073,320 MWh in 1977.

TABLE II-2

1976 ELECTRIC GENERATION (MWh)

Montana-Power Company	5,927,538.5
Washington Water Power	2,003,921
Puget Sound Power & Light	1,155,879.5
Montana-Dakota Utilities	335,402
Pacific Power and Light	30,621
Montana Light and Power	24,678
Federal Facilities	6,618,217
TOTAL	**16,096,257**[1]

Source: DNRC, Energy Division

[1]The total reflects a mixture of net and gross generation data for the individual facilities. Federal Energy Regulatory Commission data include net generation only and total 16,094,433 MWh.

PROSPECTIVE ENERGY DEVELOPMENT IN MONTANA

A wide range of major energy development projects, including coal-related developments, pipelines, hydroelectric facilities and electric transmission, are presently pending in Montana. A number of the projects have been applied for under specific state or federal laws while others are in the early planning stage and have not yet been formally proposed. The status of each project is noted individually.

3.1. FOSSIL ENERGY

3.1.1. ANTICIPATED NEW COAL MINES

Table III-1 lists new coal mines which the Department of State Lands is presently evaluating or for which applications are anticipated in the next two years. All mine permit applications are processed in accordance with the Montana Strip and Underground Mine Reclamation Act, the Federal Surface Mining Act of 1977, and other state and federal laws.

TABLE III-1
ANTICIPATED NEW MONTANA COAL MINES

Applicant Company	Mine	County	Permit Application Date	Applicant's Proposed Opening Date	Estimated Maximum Production Per Year (million tons per year)[2]
Pacific Power & Light Company	Spring Creek	Big Horn	8-3-77	1980	10
Shell Oil Company	Pearl	Big Horn	1-20-78	1980	2
Warburton[1]		Blaine	9-22-77	1979	less than 0.01
Montco	Nance	Rosebud	Anticipated	1983	12
Hathaway Coal Company		Custer	Anticipated	1980	less than 0.1
New Bridger Coal Company		Carbon	Anticipated	1980	less than 0.1

Source: Department of State Lands

[1]Private Landowner

[2]Mines typically do not reach maximum rates of production until the third or fourth year after opening.

3.1.2. COAL-FIRED ELECTRIC GENERATION

3.1.2.1. BASIN ELECTRIC POWER COOPERATIVE

Basin Electric Power Cooperative, a North Dakota-based utility, is conducting a preliminary study to identify potential alternative sites for two 440 MW coal-fired generating plants. The units would be constructed consecutively, with the first scheduled to go on-line in 1986. The northeastern quarter of McCone County has been identified as a possible locality. Other alternative site areas include Glasgow, Great Falls, and Wolf Point. According to its long range plan, the utility anticipates filing a formal application under the Major Facility Siting Act late in 1979.

3.1.2.2. MONTANA POWER COMPANY

MPC's most recent ten-year plan indicates that if Colstrip Units 3 and 4 are constructed, the MPC system will require new generation to meet peak energy demands in 1987, and in 1988 further base load generation will be required. Plans to cover the deficiency may include participation in a new generation plant located outside of Montana or siting a 330 MW facility in state. Possible sites under consideration include the Colstrip area, an area near the mouth of the Bighorn River, and areas near Whitehall, Cascade, and east of Great Falls. MPC indicated it would begin site screening studies during 1978.

3.1.3. COAL GASIFICATION

3.1.3.1. MONTANA POWER COMPANY

MPC's ten-year plan also discusses the utility's continuing investigation of the economics and feasibility of coal gasification, although MPC declared no specific plans for engineering, siting, financing or constructing a plant. MPC is discussing the possibility of a joint venture with MDU.

3.1.3.2. TENNECO

In 1973 Intake Water Company, a wholly-owned subsidiary of Tenneco, Inc., a Houston-based corporation, appropriated 10,000 acre-ft and 16,600 acre-ft per year of water from the Yellowstone River for two facilities. According to the appropriation notice, the water would be used for a coal gasification plant that would produce 250 mm ft^3 of synthetic natural gas per day and an 880 MW coal-fired electric generation facility. Intake indicated Wibaux County, Montana, and Golden Valley County, North Dakota as the general site area under consideration. However, Tenneco has filed an affidavit in district court indicating that it is not planning to construct the facilities.

3.1.4. OTHER COAL CONVERSION

3.1.4.1. DREYER BROTHERS, INC.

In 1974 Dreyer Brothers, Inc., a wholly-owned subsidiary of Burlington Northern, Inc., notified the State of Montana that it proposes to develop a coal mine and processing facility, known as Circle West, which would involve the manufacture of ammonia, methanol-methyl fuel, and synthetic diesel fuel oil. The total operation would require approximately 35,500 tons of lignite per day and up to 32,000 acre-ft of water per year. The proposed site is in McCone County.

DNRC is the lead agency for any state actions taken on the proposal, although no formal application has yet been filed. In anticipation of an application, DNRC has developed an overall study plan that would acquire information for processing the proposal under the Major Facility Siting Act, the Strip and Underground Mine Reclamation Act and the

Strip Mine Siting Act. Dreyer Brothers, Inc., contracted with DNRC in December 1975 to initiate those portions of the study plan which would ultimately be required by law if the project proceeds. The contract calls for baseline environmental studies and the coordination of DNRC action with all levels of government as well as other interested parties. In June 1977 the company decided to indefinitely postpone any new studies. As a result only the vegetation and terrestrial fauna studies have been completed. DNRC monitoring studies in these two areas are currently underway and will continue indefinitely.

In August 1978, Dreyer Brothers, Inc., requested DNRC to resume air quality and meteorological monitoring studies as soon as possible and indicated that the information would be included in an application to the Department of State Lands for a strip mining permit. The strip mine is the portion of the project that the company is actively pursuing at this time. Burlington Northern, the parent company of Dreyer Brothers, Inc., has formed a new entity, Northern Resources, Inc., in partnership with the Resource Sciences Corporation of Tulsa, Oklahoma for the mine project. The company has indicated that the new mine would provide a sufficient amount of coal to accommodate both a coal conversion and steam electric generating facility.

3.1.5. CRUDE OIL PIPELINES

3.1.5.1. NORTHERN TIER PIPELINE COMPANY

The Northern Tier Pipeline Company has proposed construction of new oil tanker berthing facilities at Port Angeles, Washington, with related transfer and on-shore oil storage facilities and a 1550-mile pipeline system crossing the states of Washington, Idaho, Montana, North Dakota, and terminating at Clearbrook, Minnesota. The purpose of the system is to provide a continuing supply of crude oil from a variety of sources to existing refineries in the Northern Tier states. Montana's three major petroleum refineries have depended on Canadian exported crude and are facing a complete supply curtailment by 1982 (See Section 2.2.). The pipeline would have an initial capacity of 740,000 barrels per day, which would eventually be increased to a maximum of 933,000 barrels per day.

The company has filed a right-of-way application with the Bureau of Land Management for permission to cross federal lands. The Oregon State Office of the BLM is the lead agency in charge of preparing an environmental impact statement for the project under the National Environmental Policy Act. Other federal agencies involved include the Forest Service, Fish and Wildlife Service, Bureau of Reclamation, Bureau of Indian Affairs, Corps of Engineers, Coast Guard and Environmental Protection Agency.

Washington, Montana and Minnesota are presently preparing individual EIS's on those portions of the system that will be located in each state. As the lead agency for Montana's study, DNRC signed an agreement with the Northern Tier company in February 1978 to specify the procedures of the study and to arrange financing through fees collected under the Montana Environmental Policy Act (MEPA). The agreement calls for close coordination with the various state and federal agencies involved in the permitting process. Montana's draft EIS is scheduled for release in April 1979; the final document is to be completed by August 1979.

The Montana portion of the project would include 624 miles of buried steel pipe, eight pump stations and a maximum of 75 feet of permanent right of way. In addition, two delivery facilities would connect the proposed pipeline to the Glacier Pipeline near Harlowton and the Western Crude Oil Pipeline near Richey. An estimated construction work force of 440 people will be needed in each of five sections of the line in Montana with additional personnel required for construction of the pump stations and delivery facilities.

The company has submitted only a single route for the pipeline. DNRC has determined that MEPA requires analyses of alternative routes, as well as other alternatives to the pipeline, including conservation, liquefaction, transportation alternatives, and the alternative of "no action." The Department will make recommendations delineating a preferred route which will be the most socially and environmentally acceptable in its entirety. The Department has proposed that the company submit for approval: 1) an adequate spill prevention and cleanup plan; 2) construction guidelines; 3) a quality control program for the construction phase; and 4) a post-construction reclamation plan.

Under the enforcement provisions of the federal Clean Water Act, the Environmental Protection Agency (EPA) has authority over oil spills in navigable water. However, if a pipe or pump station leaks, no agency has statutory authority to act until the oil enters a body of navigable water. The U.S. Department of Transportation has been authorized to draft regulations for on-land spills, but there are no indications as to when this will be done. State water quality standards and their enforcement are based on federal standards and procedures and the state has no additional authority over oil spills that would project waters not already under the jurisdiction of EPA. Therefore, nonnavigable streams remain unregulated, unless, as occurred with the Trans-Alaska Pipeline, the state receives and approves a spill prevention and clean-up plan (SPCC) from Northern Tier which the company will be required to comply with. In Alaska, the federal Department of the Interior and the state attached stipulations, including SPCC Plan provisions, to the pipeline right-of-way. The Bureau of Land Management has indicated it will do the same for the Northern Tier pipeline.

The State of Montana has no legal authority to enforce construction guidelines or a quality control program for construction unless the company agrees. The Department of State Lands will have jurisdiction over post-construction reclamation of state land. Federal lands are similarly protected. Reclamation on private land will be contingent on agreements between the company and individual landowners.

Table III-2 is a preliminary compilation of the state permits Northern Tier must receive.

TABLE III-2
STATE PERMITS REQUIRED BY NORTHERN TIER PIPELINE

Permit	Responsible State Agency
Eminent Domain	Public Service Commission
Easements to Cross State Land	State Lands
Easements to Cross Highways and Streams	Highways
Streambed Preservation Act	Local Conservation Districts
Montana Pollution Discharge Elimination System	Health and Environmental Sciences (HES)
Flood Plain Management Act	Natural Resources and Conservation (DNRC)
Forest Slash Burning Right-of-Way Clearance	Board of HES and Forestry Division of DNRC

The Northern Tier Pipeline Company hopes to commence construction of the project in the latter half of 1979 and have the system in operation in the fall of 1981.

3.1.5.2. BELLE FOURCHE PIPELINE COMPANY

In April 1978 the Belle Fourche Pipeline company notified the State of Montana of its intention to construct a crude oil pipeline and associated gathering lines from various producing fields in McKenzie County, North Dakota to Baker, Montana where the line will interconnect with an existing line to carry the crude on to South Dakota. About 36 miles of the main line would be located in Montana. At present the only means of transporting crude oil from the North Dakota fields is by truck carrier. The line will carry approximately 8000 barrels per day. The company must obtain air and water quality permits and right of way permits from the State of Montana. The company hopes to begin construction in the near future.

3.1.6. NATURAL GAS PIPELINES

3.1.6.1. NORTHERN NATURAL GAS COMPANY

Northern Natural Gas Company is planning to construct a 1620 mile natural gas pipeline, known as the Northern Border Pipeline, from Alberta, Canada to a point near Mason City, Iowa. Approximately 182 miles of the proposed route would cross Phillips, Valley and Roosevelt counties in northeastern Montana. Northern Natural has received federal approval to construct the line, which will eventually be linked into the Alaska Highway Pipeline system to deliver 2.2 billion cubic feet per day of natural gas to the Midwest. The company formally presented the project to Montana state officials in August 1978. The company anticipates constructing the Montana segment of the line during 1980 using two crews of 300-400 workers. Surplus gas from Alberta will be transported before the Alaskan system is completed. Although no deliveries are presently scheduled for Montana, the company may negotiate with the Fort Peck Tribes for natural gas service.

3.1.7. GENERAL AMERICAN TRANSPORTATION COMPANY—UNIT TRAIN PROJECT

The General American Transportation Company (GATX) proposes to ship crude oil from Port Westward, Oregon, to the Glacier Pipeline Facility at Cut Bank, Montana. One unit train carrying over two million gallons of crude would leave Port Westward every 40 hours and use the existing Burlington Northern track to Cut Bank. In August 1978 GATX asked the U.S. Army Corps of Engineers to suspend preparation of an EIS on the project. In its request, the company cited governmental interference and a lack of customers for the oil as the reason for the request. At an earlier stage in its study process, the Corps solicited comments on the EIS study design. In response, the Planning Division of Montana's Department of Community Affairs requested the Corps to include detailed analyses of the potential impacts of the unloading operations at Cut Bank and the potential for an oil spill and related impacts along the route which crosses or parallels several Montana rivers. The future of the project is uncertain at this time.

3.2. HYDROELECTRIC FACILITIES

The projects summarized in this subsection include studies and proposals to construct new generation at existing sites (Libby, Canyon Ferry and Fort Peck dams) and at new sites on the Kootenai and Flathead Rivers.

3.2.1. FACILITY EXPANSIONS

3.2.1.1. LIBBY ADDITIONAL UNITS AND REREGULATING DAM

In September 1978 a Montana District Court judge granted a preliminary injunction against the Corps of Engineers' installation of four more generators at Libby Dam. The new generators would increase the installed capacity at Libby from 420 MW to 840 MW and future operation of the dam would provide peaking power rather than baseload generation. The project also includes a reregulating dam that would be constructed downstream from the present facility to reduce fluctuations on the Kootenai River that would otherwise result from the new operation. The amount of energy produced depends on the volume of water passing through the generators and the elevation difference or "head" between the lake level behind the dam and the water level below the dam. Since the addition of four more generators changes neither inflows to the reservoir, spills from the reservoir, nor the head, eight generators will not produce more energy over time than the four currently in place, but will produce the energy over a shorter period of time during hours of peak electrical use.

The addition of further generation at Libby Dam has stirred considerable controversy. Issues that have been raised include, among others, the question of need for the additional peaking power, the wisdom of inundating ten more miles of the Kootenai River for the reregulating reservoir, the use of a reregulating facility to smooth river flows only to existing maximum limits, and the impact of the project on the bald eagle, an endangered species.

The Libby Rod and Gun Club filed a suit challenging several aspects of the proposed project, including its authorization. Congress authorized Phase I studies for advanced engineering and design for the generating facilities in 1974. The judge found that actual construction of the project is not, in his opinion, authorized, and also that the Corps failed to adequately consider alternatives to the project. A trial date will be set for further consideration of the issues.

The State of Montana is reassessing its original position of support for the project. Several key state agencies have prepared a preliminary position paper that evaluates a number of controversial issues concerning the proposed project. In addition, the DNRC held a meeting in Libby in November 1978 to gather public input concerning the project. DNRC and other state agencies will recommend a state position to the Governor in the form of a finalized issue paper. The Governor is expected to announce his position thereafter.

3.2.1.2. CANYON FERRY DAM

The potential for generating 90 MW of additional energy at the existing Canyon Ferry Dam and for converting the facility to a peaking operation was initially identified in a 1976 U.S. Bureau of Reclamation publication entitled the "Western Energy Expansion Study" and further investigated during late 1977. The existing 50 MW powerplant is operated almost continuously throughout the year, with spills occuring during high flow months. Additional energy

would be generated with this water but the main purpose of additional generating capacity would be to convert to a peaking operation. In lieu of almost constant generation, the plants would be operated for two separate periods totaling about eight hours each day. Further study of the dam is scheduled through 1979.

3.2.1.3. FORT PECK DAM

The Corp of Engineers has investigated a wide range of water resource problems and opportunities related to the Missouri River and the six main stem dams along an area extending over 1,500 miles from Sioux City, Iowa to Three Forks, Montana. Subjects of the study include: 1) the feasibility of installing additional hydropower generating units both at the main stem dams and adjacent to the river; 2) resolution of bank erosion, waterlogging, and residual flood problems; 3) opportunities for recreation, fish, and wildlife enhancement; 4) operating plans of the main stem system considering future water use; and 5) potential for extending navigation upstream from Sioux City, Iowa.

The study specifically investigated the potential addition of 185 MW to the Fort Peck Dam and a reregulation dam at an investment cost of $84,253,000. The reregulation facility would virtually eliminate the downstream fluctuations that result from daily power peaking operations. About 200 acres of terrestrial habitat, including 50 acres of islands, would be lost due to inundation, erosion, or bank slope adjustment in transforming eight miles of river to a reregulation reservoir. About 643 acres of existing dredge cut lakes would be isolated, blocking recruitment of river fish into the lakes. Fish populations would be virtually eliminated in the reregulation reservoir reach. Also, potential for outbreak of waterfowl disease may be created by the combination of an ice-free reservoir and heavy duck use.

The investigation has proceeded to the point of establishing the economic feasibility of the Fort Peck reregulation dam and reservoir; however, further investigation is necessary to address environmental issues. The Corps of Engineers has recommended that the selected plan be authorized for advanced engineering and design planning.

3.2.2. NEW FACILITIES

3.2.2.1. NORTHERN LIGHTS, INC.— KOOTENAI FALLS

A formal application to DNRC for approval of a 150 MW hydroelectric facility at Kootenai Falls in Lincoln County is anticipated in 1979. The proposed underwater dam would stretch 700 feet across the Kootenai River and back up water for approximately two miles. Water would be diverted to an underground powerhouse to produce about 500 million kilowatt hours of electricity annually. Seven rural electric cooperatives (Northern Lights, Lincoln, Glacier, Flathead, Missoula, Ravalli, and Vigilante) and the Bureau of Indian Affairs/Flathead Irrigation Project are participating in the project. Power would be distributed to the cooperatives through the Bonneville Power Administration grid system. Northern Lights, Inc. the project's formal representative, presently holds a preliminary permit from the Federal Energy Regulatory Commission to conduct studies on the project and in November of 1978 formally applied to FERC for a project license.

In February 1978, Northern Lights, an Idaho-based cooperative, signed an agreement with DNRC to carry out a four-season baseline study of the fisheries and wildlife resources of the Kootenai Falls area. DNRC subcontracted this work to the Department of Fish and Game. A final report is due July 30, 1979. The studies are being conducted in accordance with requirements of the Major Facility Siting Act and MEPA.

Although Northern Lights, Inc., hopes to obtain approval of the project in time to begin construction in 1980, both FERC and DNRC permitting processes require a two year evaluation. Federal agencies involved with the project include BPA, FERC, USFS, BSFWS, BR, CE and BIA.

3.2.2.2. U.S. ARMY CORPS OF ENGINEERS —FLATHEAD-CLARK FORK STUDY

In response to Congressional directive, the Army Corps of Engineers is currently identifying hydropower alternative(s) in the Flathead-Clark Fork River Basin that have a capacity for meeting a portion of the future power needs in western Montana and the Pacific Northwest region while minimizing adverse environmental and social impacts.

Based on preliminary engineering, economic and environmental studies on a wide range of possible hydropower sites in the river basin, the following four alternatives on the Flathead River appear most feasible at this time: Buffalo Rapids 2, Buffalo Rapids 4, Sloan Bridge, and a combination of Buffalo Rapids 2 and 4. All four alternatives involve low, run-of-the-river facilities.

In November 1978 Senator John Melcher stated his opposition to the Corps' continued study of the Flathead, noting that the dams are not wanted and that the time and expense of further studies could be directed to more useful purposes elsewhere. Senator Melcher indicated he would try to eliminate the Flathead Study from the Corps' budget in the next Congressional session.

3.2.2.3. BUREAU OF RECLAMATION—UPPER MISSOURI

Under the auspices of the Missouri River Level B study, the Bureau of Reclamation is examining the feasibility of new generation at a number of sites. One site approximately one mile upstream from Fort Benton could accommodate four 90 MW generators or 360 MW total installed capacity. An earthfill structure is contemplated which would create a thirty mile reservoir extending to existing Morony Dam. An afterbay dam would be constructed eleven miles downstream from the site. The plan includes facilities sufficient to irrigate 8,700 acres north and east of the reservoir. An alternative plan would involve a run of the river dam, 160 MW generating capacity, and no irrigation.

Gibson Dam, located on Sun River approximately five miles downstream from the confluence of the North and South Forks, can potentially accommodate a 7.5 MW power plant. Castle Reef, a site located about three miles downstream from Gibson Dam, could handle a 4 MW and a 17 MW unit. The two units would be required in order to utilize low and high head water conditions which occur each year. The larger unit could be operated six months a year and the smaller unit for nine months. The plants would require approximately 31.5 miles of 115 KV transmission line to connect with a federal substation at Choteau.

Tiber Dam is located approximately 19 miles southwest of Chester, Montana and has potential for a 5 MW powerplant. A 72-inch outlet pipe was installed during initial construction of the dam to provide the discharge needed for power generation. Power could be transported by an existing 115 KV transmission line.

3.3. NEW ELECTRIC TRANSMISSION FACILITIES

3.3.1. FALL RIVER RURAL ELECTRIC COOPERATIVE

The Fall River Rural Electric Cooperative of Ashton, Idaho has applied to the U.S. Forest Service for permission to construct a 115 KV transmission facility from Macks Inn, ID to West Yellowstone, MT. Because only eight miles of the line would be located in Montana, the Major Facility Siting Act does not apply. However, if additional miles of line are required to reach Ski Yellowstone, a new ski development proposed for the area, this could bring the transmission proposal under the minimum mileage requirements of the siting act. The cooperative has indicated that the proposed line is needed to strengthen the system to meet present loads in the area regardless of whether Ski Yellowstone is eventually developed. The line will initially be energized at 44 KV and upgraded to 115 KV at a later date if and when the loads become greater.

3.3.2. WASHINGTON WATER POWER COMPANY

The Washington Water Power Company (WWP) is planning to apply in 1979 for a certificate to construct a 230 KV transmission line from Thompson Falls, Montana, to the Pine Creek substation in Idaho. The company's preliminary proposal indicates that 22 miles of the line would be located in Montana in an existing tranmission corridor which follows Prospect Creek to Burke, Idaho and primarily involves National Forest land. However, potential alternative routes may be feasible depending on Bonneville Power Administration construction plans in the area. According to WWP, additional power is needed at the existing Pine Creek substation to serve increased loads in the Coeur d'Alene, Idaho, area and to increase general system reliability.

3.3.3. BONNEVILLE POWER ADMINISTRATION (BPA)

In September 1978 a court decision halted construction of additional generators at Libby dam (see Section 3.2.1.1). If the project eventually proceeds, BPA plans to upgrade existing transmission facilities to bring the additional energy into the system. A 230 kV double circuit line from Libby via Bonners Ferry to Sandpoint, Idaho, would replace an existing 115 kV wood-pole line. BPA will make further studies to determine the specific location of the line. Results will be published in a Draft Location Supplement to a draft EIS which BPA has already published.

3.3.4. WESTERN AREA POWER ADMINISTRATION (WAPA)

The Western Area Power Administration, the federal power marketing agency in eastern Montana, proposes construction of a 230 kV transmission line from Miles City to New Underwood, South Dakota with an intermediate substation at Baker, Montana. The total length of the line is 328 miles, with 93 miles located in Montana. A transmission study of the area has indicated a need for improved system stability, improved reliability of service to existing loads and capacity for future load growth. WAPA anticipates beginning construction in early 1980 with completion scheduled in late 1981. MDU and Basin Electric Power Cooperative are also participating in the Dakota part of the project. WAPA published a draft EIS on the proposal in July 1978. DNRC has reviewed this document, with particular attention to proposed centerline location.

3.4. NEW AND DEVELOPING TECHNOLOGIES

The energy-related projects previously discussed in this section primarily involve proposals to construct large scale facilities for electrical generation or production of other products derived from coal, generation of hydroelectric power, and transportation of oil and natural gas. With the relatively recent advent of national policies calling for reduced dependence on imported petroleum, rising prices for all forms of energy, and a growing awareness of the finite nature of fossil-based fuels, energy research and demonstration projects are, on the one hand, developing technologies to utilize traditional energy sources more efficiently, and, concurrently, developing technologies to effect a transition to greater dependence on renewable energy sources.

Numerous examples of this type of research and development activity are presently on-going in Montana. The magnetohydrodynamics program of the Montana Energy and MHD Research and Development Institute (MERDI) (see Section 9.1) is developing a more efficient and relatively clean method of burning coal. Alternative renewable energy sources, including solar energy for heating and cooling, wind energy generation, and wood and biomass energy conversion are being researched, developed, and tested throughout the state through the combined efforts of DNRC's Alternative Renewable Energy Sources grant program (see Section 5.3.2.2), the University System (see Section 5.14), MERDI, the National Center for Appropriate Technology (Section 9.2), the Alternative Energy Resources Organization (Section 9.3), private citizens, utilities, and other organizations, Projects range in scale and sophistication from feasibility studies of utility-sized wind generation technology to self-installed residential solar systems. Discussion of specific projects is scattered throughout this publication, particularly in the sections pertaining to the agencies and organizations mentioned above.

ENERGY LEGISLATION

4.1. MONTANA ENERGY LEGISLATION

The majority of Montana's energy-related laws have been passed since 1971 in response to the growing interest in developing the West's energy resources and potential adverse impacts caused by the extraction and conversion of energy sources that are primarily nonrenewable. Considered in totality, the legislation summarized in this section is a statement of Montana's policy toward energy-related development. The laws are presented in the following five categories with the recognition that a number of provisions could appropriately be placed in one or more categories: regulatory; coal development impact; energy emergency planning; conservation; alternative energy and renewable resources; and taxes.

4.1.1. REGULATORY LEGISLATION

The regulatory laws relating to energy are administered primarily by DNRC, the Department of State Lands (DSL), and the Public Service Commission. A common theme is the recognition that environmental, social, economic and human health-related factors may be adversely affected by energy extraction, conversion and distribution activities. Minimization and mitigation of impacts, equitable distribution of costs of energy production, reclamation of natural resources, and energy conservation are primary points of emphasis.

4.1.1.1. MAJOR FACILITY SITING ACT (Section 70-801 et seq. R.C.M. 1947)

The act provides for comprehensive review of proposals to construct and operate certain kinds of facilities for generating, converting or transmitting energy in Montana. The legislature found that additional facilities may be required to meet increasing need for electricity and other forms of energy, but that such facilities have major impacts on the environment, on population concentrations, and on the welfare of the citizenry. To insure that adverse impacts are minimized, such facilities must receive a certificate of environmental compatibility and public need from the Board of Natural Resources and Conservation. Air and water quality related matters are the responsibility of the Board of Health and Environmental Sciences.

The act applies to: 1) facilities which can generate 50 MW or more of electricity; 2) facilities which can produce 25 million cubic feet or more of gas per day; 3) facilities which can produce 25,000 barrels of liquid hydrocarbon products per day; 4) uranium enrichment facilities; 5) facilities which can utilize, refine or convert 500,000 tons of coal or more per year; 6) electric transmission lines greater than 69 kilovolts capacity, with certain exceptions for lines covering short distances; 7) facilities for development and use of geothermal resources; 8) facilities for underground in situ coal gasification; and 9) pipelines leading from or to a facility as defined above. Oil and gas refineries and facilities under exclusive federal jurisdiction are exempt.

DNRC must evaluate each facility application, with assistance from other executive departments in their respective areas of expertise, and report to the Board within two years (one year for transmission lines and certain types of pipelines less than 30 miles in length) after accepting the application. The application must include a description of the proposed facility, with discussion of alternative sites, an explanation of need for a utility facility, discussion of efforts to promote conservation and reasonable alternative energy sources and a filing fee based on the estimated construction cost of the facility to finance the state's evaluation. The filing fee may be reduced by five percent if the applicant notifies the Department of its intention to file at

least twelve months in advance of actually filing an application. The Board must schedule a hearing within 120 days of receiving the Department's report. Hearings are conducted under the contested case provisions of the Administrative Procedures Act (Section 82-4209 through 4217, R.C.M. 1947). The applicant, the Departments, affected municipalities and residents and interested organizations or persons may participate. Within 90 days after conclusion of the hearing the Board must issue its decision. A certificate may not be granted unless the Board finds and determines: 1) the nature of the probable environmental impact; 2) that the facility represents the minimum adverse environmental impact, considering the state of available technology and economics of various alternatives; 3) certain environmental factors; 4) that the facility is consistent with regional plans for expansion of utility grids and will serve system economy and reliability; 5) that the facility's proposed location conforms to state and local laws and regulations; 6) that the Board of Health has certified that the facility will not violate air and water quality standards and implementation plans; and 7) for a utility application, the basis of the need for the facility and that the facility serves the public interest, convenience and necessity. Need, environmental impact, benefits to the applicant and the state, effects of resulting economic activity and effects on public health, safety and welfare must be considered in making these determinations.

The siting act requires annual submission of long-range plans by utilities and any person contemplating construction of a facility within the ensuing ten years. The plans must also be filed with EQC, and the Departments of Health and Environmental Sciences, Lands, Highways, Community Affairs and Public Service Regulation.

Certificates may be revoked for failure to meet safety standards or failure to comply with any other conditions imposed by the Board. Penalties up to $10,000 per day may also be assessed. The Department of Natural Resources and Conservation is responsible for monitoring the operation of facilities.

An initiative passed in 1978 amended the siting act to require the Board of Natural Resources and Conservation to find that a number of conditions are met before a nuclear power plant may be certified. The voters of the state must then approve the facility either by referendum or initiative.

Administration of the siting act is discussed in Section 5.3.2.1.

4.1.1.2. PUBLIC UTILITY RATE REGULATION (Section 70-101 et seq. R.C.M. 1947)

The Public Service Commission (PSC) is charged with supervision and regulation of all public utilities, including municipally owned utilities, which produce or deliver heat, street and railway service, light, power, water (for business, manufacturing, household use or sewerage), telegraph or telephone service. The Commission consists of five members elected from geographic districts for four year terms.

Public utilities are required to provide reasonably adequate service at reasonable rates. Rate schedules must be filed with the PSC and any changes in the rates require PSC approval. Before approving a rate change the PSC must publish a notice of the proposed change, announce a hearing date and inform the public how to participate. Hearings are conducted under contested case provisions of the Administrative Procedures Act. The PSC may ascertain the value of the utility's property and take into account the expenses and capital of the utility to set the rates. Case law has also established that utilities are guaranteed a fair rate of return on their investments. Utility advertising costs may not be included as expenses except for advertising which encourages energy conservation or development of renewable energy sources. If the PSC takes no action within nine months after requested changes are filed, the new rates may become effective. If the final order of the PSC reduces the increase in effect, the revenues collected in excess of the final order would be rebated to consumers plus ten percent annual interest.

The PSC may investigate all aspects of the management of a public utility's business and may regulate the issuance of securities. Permission to issue or acquire securities will be granted unless: 1) it would be inconsistent with the public interest, 2) it would be for a purpose not permitted by law, or 3) the aggregate amount of securities outstanding or proposed would exceed fair market value of the utility's property.

Either on its own motion or on receiving a complaint alleging unfair, discriminatory or unreasonable rates, inadequate service or unreasonable rules/procedures, the PSC may conduct an investigation and hold a hearing after which it may issue orders adjusting rates, procedures and service. Any interested party may appeal an order to district court within 30 days. Unless an injunction is

granted to stay an order, it becomes effective in 20 days. If new evidence is raised at trial, the PSC may redetermine an order.

4.1.1.3. PIPELINE REGULATION (Section 8-201 et seq. R.C.M. 1947)

This law determines that common carriers (pipelines) of petroleum or coal products are of public interest and are subject to state regulation. The PSC may establish and enforce rates and regulate the gathering, transportation, loading and delivery of the product. Carriers must make monthly reports to the PSC and as with other utilities, the business is open to PSC inspection. Discrimination in prices or services is prohibited. Pipeline construction is also regulated. In turn, the carrier has the right of eminent domain.

4.1.1.4. STRIP AND UNDERGROUND MINING AND RECLAMATION ACT (Section 50-1034 et seq. R.C.M. 1947)

This law, passed in 1973, applies to coal and uranium strip and underground mining operations and prospecting which remove more than 10,000 cubic yards of mineral or overburden per year. The Board of Land Commissioners and the Department of State Lands administer the law.

The reclamation law declares it is "the policy of this State and its people": 1) to maintain and improve the State's clean and healthful environment for present and future generations, 2) to protect its environmental life support system from degradation, 3) to prevent unreasonable degradation of its natural resources, 4) to restore, enhance, and preserve its scenic, historic, archeologic, scientific, cultural and recreational sites, 5) to demand effective reclamation of all lands disturbed by the taking of natural resources, and 6) to require the legislature to provide for proper administration and enforcement ... in order to achieve the aforementioned objectives." The Legislature found that in order to achieve the aforementioned policy objectives, it is necessary to require permits for mining operations, a comprehensive plan for reclamation, an adequate performance bond, and to prohibit mining on certain land.

A one-year permit must be secured from DSL before any exploratory work may begin. A prospecting map, reclamation plan and description of prospecting techniques and a reclamation bond must be submitted.

Before mining begins, a five-year permit, contingent on an acceptable reclamation plan for the affected land, vegetation and water, must be secured. A bond of $200 to $2,000 per acre is also required, unless actual reclamation costs require a higher amount. The permit application must include written consent or waiver by the surface owner(s) of the proposed mining area.

According to the law, DSL may not approve a mine application if: 1) any part of the proposed operation would be contrary to the purpose of the act; 2) the proposed site or neighboring area includes land having special, exceptional, critical or unique characteristics; (these are defined as: a) biological productivity essential to certain wildlife species or domestic stock; b) ecological fragility, in the sense that the land could not return to its former ecological role in the reasonably foreseeable future; c) ecological importance, in the sense that the land has such a strong influence...it could precipitate a system-wide reaction of unpredictable scope...; and d) scenic, historic, archaeologic, topographic, geologic, ethnologic, scientific, cultural or recreational significance, with particular attention accorded to Plains Indian history and culture); 3) the overburden on any part of the area has historically proved to be a problem in terms of landslides or various forms of water pollution (the Department shall delete that area from the mining plan); and 4) the operation constitutes a hazard to a personal dwelling or public property (such areas shall be deleted).

The mining operation must begin reclamation "as rapidly, completely and effectively as the most modern technology and the most advanced state of the art will allow." The law requires specific actions and includes technical requirements for backfilling, grading and topsoil replacement. The operator is required to submit annual progress reports, but may propose alternatives in the process if they are consistent with the intent of the act. The Department may order appropriate changes.

All fees, forfeit funds and other money collected under the act are put in the mining and reclamation fund for administration and enforcement of the act and reclamation.

The act provides several types of legal recourse against violations, including: 1) state suits against the mine operator for civil penalties of between $100 and $1,000 per violation per day; 2) a misdemeanor for willful violation carrying a $500 to $5,000 per day penalty; 3) a resident's suit against a public official to compel him or her to enforce any provision being violated; and 4) a suit for damage against the operator by an owner of real property whose use of underground water is impaired.

4.1.1.5. STRIP MINED COAL CONSERVATION ACT (Section 50-1401 et seq. R.C.M. 1947)

In passing this act in 1973 the legislature declared it the public policy of Montana to provide for orderly development of strip mining to assure wise use and prevent waste of coal. Coal which 1) can be removed by methods adaptable to the mine location, 2) is economically feasible to mine and 3) is fit for sale in the usual course of trade must be taken.

Operators removing more than 10,000 cubic yards of coal or overburden per year must submit a mining plan to DSL containing enough information for the Department to determine whether coal will be wasted. The Department has six months to approve the plan, deny the plan and explain what must be done to gain approval, or take no action and thereby allow the plan to be approved automatically. Approved plans are effective for five years, although annual reports are required to indicate whether any waste has occurred or is anticipated.

Mine operation without an approved mining plan or violation of a plan incurs civil penalties of between $100 to $1,000 per violation per day.

4.1.1.6. STRIP AND UNDERGROUND MINE SITING ACT (Section 50-1601 et seq. R.C.M. 1947)

Passed in 1974 and amended in 1975, this act applies to coal and uranium mines and establishes a state policy "to provide adequate remedies for the protection of the environmental life support systems from degradation and provide adequate remedies to prevent unreasonable depletion and degradation of natural resources."

The act applies to any mining operation removing more than 10,000 cubic yards of mineral or overburden per year. A mine site location permit must be secured from DSL before any preparatory work is begun, including all onsite disturbances (except prospecting) such as railroad building and transmission line construction and erection of draglines and loading shovels. Within one year of receiving a complete application, DSL must notify the applicant if the application is acceptable, in which case a one year permit is issued. The permit is renewable until a permit is secured under the Strip and Underground Mine Reclamation Act. DSL may not issue a permit if it finds that: 1) the proposed mine violates the purposes of the act; 2) the area could not be approved under the selective denial criteria of the reclamation act (Section 50-1034 et seq. R.C.M. 1947); or 3) reclamation plans do not meet the requirements of the reclamation act. Content of the application for a mine site location is specified in the regulations. Each application must include a reclamation plan.

Before a permit is issued, the applicant must post a surety bond of between $200 to $10,000 per acre unless the actual reclamation cost is higher. Forfeiture of a bond means an operator is ineligible for future permits unless the site is reclaimed without cost to the state. All fees and forfeit bonds are credited to a mining and reclamation fund and are spent, by appropriation, for administering and enforcing the act and for reclamation of land and water.

In the event of violations, all permits held by the operator are suspended and no further permits will be issued if violations are repeated. Additionally, the operator is liable for civil penalities or misdemeanors for willful violations. The latter incur a fine of between $500 and $5,000 per violation per day.

Any resident who knows the act or Department regulations are not being enforced must first request an enforcement action but then may sue the responsible state officer, if necessary, to force the individual to carry out the provisions.

4.1.1.7. COAL MINING LEASES AND PAYMENTS (Section 81-501 et seq. R.C.M. 1947)

The Board of Land Commissioners is given authority to lease state lands to allow mining of coal where the state owns the mineral rights. Leases must be awarded through a competitive bid system (including a bonus for the first year's rental) and the state must be compensated commensurate with the market value of the coal reserves, as determined by the Board. All mining operations must be carried out in an orderly manner and must not make subsequent mining more difficult or expensive. All leases require that the coal be mined, handled and marketed in a manner which will prevent waste.

Leases are initially issued for ten years and reissued as long as the operation is producing commercial quantities of coal. If it is not, the lease is terminated unless the operator has a strip mining or mine site location permit before the ten year term expires. Leases may not be issued to foreign corporations or domestic corporations which sell to foreign

sources, excepting Mexican and Canadian companies. Also leases may not be issued to strip mining operations that would adversely affect future deep mining.

Payments are on a rent and royalty basis. Rentals must be at least $2 per acre and royalties at least ten percent of the mine-mouth price of the coal. Rates may be adjusted at the end of the initial ten year lease and every five years thereafter. All monies are credited to the general fund.

4.1.1.8. GEOTHERMAL RESOURCES — LEASES ON STATE LAND (Section 81-2601 et seq. R.C.M. 1947)

The Board of Land Commissioners is authorized to lease state land, including the beds of navigable streams and lakes, for exploration and development of geothermal resources. Leases for other uses, such as coal mining, do not include rights to geothermal resources. Leases are generally for not more than 640 acres and are for an initial ten year term. The lessee is expected to be diligent in exploration and development and is required to pay an annual "delayed exploration penalty" after the third year if activities have not begun or continued. Rentals and royalties are credited to the general fund and are based on energy, minerals and chemicals produced and must equal at least $2 per acre per year. The state reserves all surfaces rights to land leased for geothermal development.

4.1.1.9. OIL AND GAS LEASES ON STATE LAND (Section 81-1701 et seq. R.C.M. 1947)

The Board of Land Commissioners is authorized to lease state lands for which the state holds the oil and gas rights. Lease arrangements are the same as those described for geothermal development, excepting that the lease may be terminated if drilling has not begun within two years, or if, after drilling a dry hole, a new well is not begun before the anniversary of the lease following completion of the first well, or if delay drilling penalties are not paid. Rental fees and royalties are set by the Board. Leases may also be granted for up to twenty years for underground storage facilities for natural gas. Prevention of waste or destruction of the resource is a major condition accompanying all leases.

4.1.1.10. OIL AND GAS RESOURCE CONSERVATION (Section 60-126 et seq. R.C.M. 1947)

The Board of Oil and Gas Conservation is given the authority to regulate oil and gas extraction operations in order to avoid waste, which includes any practice resulting in inefficient extraction, excessive surface loss, inefficient storage or unnecessary dissipation of oil and gas. The Board has broad power to supervise drilling operations to prevent pollution of hydrocarbons or pollution of water by oil or salt water. The Board may require full production of some types of wells in the interest of conservation. The five member Board includes two representatives from industry.

No more than one specified well may be drilled for a common source of supply. When there is more than one owner, the Board may order, on request, that all interests be pooled and allocate costs for drilling and operating the well among the owners. The Board may order well spacing units for an oil and gas pool in order to prevent waste. The order must be based on a hearing which establishes that: 1) the unit is necessary to increase ultimate recovery; 2) the benefits outweigh the costs; and 3) the pool to be included has been reasonably defined by drilling operations. The order is not effective unless approved by 80 percent of the owners involved.

Well owners must plug abandoned wells and restore land to its previous grade and productive capacity unless the surface owner agrees, with Board approval, to a different restoration plan. Well owners must notify surface owners of intentions to plug and abandon a well. The Board may draw upon the Resource Indemnity Trust Fund (see Section 4.1.5.2.) to restore land if an owner cannot be located or identified.

Before drilling, an operator must file a notice and secure a permit from the Board. Companies engaged in oil and gas development must pay a drilling permit fee and a privilege and license tax in addition to posting a bond sufficient to assure that each dry or abandoned well is plugged. Revenues are used to administer and enforce the law.

4.1.1.11. GEOPHYSICAL EXPLORATION PROTECTION (Section 69-3303 et seq. R.C.M. 1947)

Any person engaging in geophysical exploration which requires use of explosives and

seismographic measurements must obtain a permit from the county commission, in consulation with the Board of Oil and Gas Conservation. A bond must be filed to assure that holes are properly plugged to avoid adverse impacts on ground water and aesthetics. Bonds are released when the Board is satisfied that adequate reclamation has been performed.

4.1.1.12. UNDERGROUND GAS STORAGE RESERVOIRS REGULATION (Section 60-801 et seq. R.C.M. 1947)

This law gives limited condemnation rights to natural gas utilities for land to be used for gas storage reservoirs which provide for orderly withdrawal of gas reserves in periods of peak demand. Areas in current oil production or capable of such are exempt. The Board of Oil and Gas Conservation must hold a hearing and find that the land is suitable for such use and that the public interest is served by the reservoir.

4.1.1.13. PETROLEUM PRODUCTS REGULATION (Section 60-234 et seq. R.C.M. 1947)

The Department of Business Regulation establishes standards and specifications for petroleum products based on nationally recognized standards. Petroleum dealers must be licensed and the Department may investigate all dealer facilities and records. Annual fees are assessed on each pump, meter and tank. This equipment must be calibrated and approved by the Department.

4.1.1.14. SALE AND MARKETING OF COAL (Section 50-604 et seq. R.C.M. 1947)

The Department of Business Regulation enforces this act which requires all entities "mining, shipping or producing coal, and...wholesaling, jobbing, exchanging, offering for sale or selling at retail any coal in this state" to keep accurate and complete copies of all original statements, bills and invoices for at least one year for purposes of inspection. This material shall be open to inspection at all times by the Department, the Attorney General and county attorneys.

4.1.1.15. EMINENT DOMAIN POLICY FOR COAL STRIP MINING (Section 93-9902.1 R.C.M. 1947)

This 1973 law prohibits use of the state's power of eminent domain for coal mining where the holder of mineral rights is not also the surface owner. This exception exists for the following reasons: 1) because of the large reserves of and the renewed interest in coal in eastern Montana, coal development is potentially more destructive to land and water and more extensive geographically than other mining; 2) in many areas in eastern Montana, mineral and surface ownership is split and the surface owner is putting the surface to productive use and "it is the public policy of this state to foster such productive use...and..to permit the mineral owner to condemn the surface owner" would deprive the surface owner of the right to use his property in a productive manner and "is also contrary to public policy as set forth in...(4)...below."; 3) the magnitude of potential coal development will subject landowners to undue harassment by excessive use of eminent domain; and 4) "it is the public policy of the state to encourage and foster diversity of land ownership and the surface mining of coal and control of large areas of land by the surface coal mining industry would not foster public policy and further the public interest."

4.1.1.16. URANIUM SOLUTION EXTRACTION (Section 50-1701 et seq. R.C.M. 1947)

This legislation, passed in 1977, imposed a moratorium on uranium solution extraction operations until April 1978 and directed DNRC to make recommendations and propose legislation to control such operations and protect affected lands and waters. The legislature recognized the increased interest in prospecting for and developing uranium ore resources and further recognized that extraction of such ores in Montana would require injection of a solvent into subsurface deposits. The moratorium protected land and water quality from this activity while the Department of Health and Environmental Sciences prepared and adopted rules as discussed in Secton 5.8.2. to regulate the process. DNRC also complied with its legislative directive.

4.1.1.17. NUCLEAR WASTES CONTROL AND STORAGE (Section 69-5817 et seq. R.C.M. 1947)

The 1977 Legislature passed this law to prohibit disposal within Montana of large quantities of radioactive materials produced in other states. This act does not apply to by-product materials used or transported for educational, scientific, medical, geophysical or other purposes licensed by the U.S. Nuclear Regulatory Commission. This law became part of an existing statute which created a state radiation control agency in the Department of Health and Environmental Sciences to regulate and license sources of ionizing radiation.

4.1.2. COAL DEVELOPMENT IMPACT LEGISLATION

One important trend in energy-related statutes is the attempt to more closely link the benefits and revenues associated with energy development to the areas, persons and governmental entities experiencing the adverse impacts and costs. Montana's coal development impact legislation channels a portion of coal severance tax revenues to the coal areas for highway reconstruction and improved community services. (Coal severance tax funds are allocated to a number of other accounts, the general fund and a special trust fund as outlined in Table IV-1, Section 4.1.5.1.)

COAL DEVELOPMENT IMPACT LEGISLATION (Section 50-1801 et seq. R.C.M. 1947)

This act establishes two special accounts for coal tax revenues to provide assistance to local governmental units facing the need to expand services due to large scale development of coal mines and coal-using energy complexes.

For the four fiscal years following July 1, 1975, all funds in the coal area highway improvement account are appropriated to the Department of Highways. The Department is to prepare a special program for reconstruction of highways in the eastern Montana coal field economic growth center, including Rosebud, Big Horn and Treasure counties. With approval of the Highway Commission, the Department may expend the state funds while awaiting federal matching funds, with or without federal assurance that unmatched state expenditures will be retroactively used to match apportionments made for primary and secondary highways under the Federal-Aid Highway Act.

The Coal Board, composed of seven gubernatorial appointees and assigned to the Department of Community Affairs, is established to evaluate grant applications from local governmental units (or state agencies assisting such units) to respond to local coal development impacts. The board awards grants from a designated portion of coal severance tax revenues which are deposited in the local impact and education trust fund account. (The distribution of all severence tax revenues is shown in Table IV-1 in Section 4.1.5.1.). The board is directed to give attention "to the need for community planning before the full impact is realized." The Board is also responsible for designating counties, towns, school districts and other governmental units which have had or expect to have an estimated ten percent population increase during any three year period since 1972. These units will receive at least fifty percent of the funds. The unexpended balance in the local impact and education trust funds account is invested. The resulting income is used to support the public schools and university systems. Coal Board grants are awarded on the basis of need, degree of severity of impact, availability of funds and degree of local effort in meeting the need.

4.1.3. ENERGY EMERGENCY PLANNING (Chapter 577, Laws of 1977)

The 1973 oil embargo and resulting domestic energy shortages and supply disruptions clearly demonstrated the need for energy emergency planning at the state level. The 1977 Legislature enacted a new statute to address this problem.

The legislature recognized that energy supplies are increasingly subject to shortages and supply disruptions, and that resulting energy emergencies may endanger public health and safety. This act establishes planning and information gathering mechanisms, and provides for exercise of emergency powers by the Governor in the case of an energy alert or emergency situation.

A legislative energy policy committee, consisting of the leadership of both houses, advises and consults with the Governor on all actions taken under this law. It is the Governor's responsibility to develop provisions for the allocation, conservation and consumption of energy, giving consideration to supplying vital public services during an energy supply alert or emergency. The Governor must develop procedures for obtaining energy information from producers, suppliers, consumers, and public agencies, to aid in determining the need for an energy supply alert or emergency. Energy suppliers may be required to submit curtailment plans. All plans and procedures must be coordinated with any federal or regional plans in existence. The Governor may subpoena witnesses and records if necessary to obtain the required information.

A supply alert lasts for 90 days and may be extended for 90-day periods. During an alert, the Governor may direct state and local officials and agencies to reduce energy consumption and to promote conservation and recycling.

When conditions exist which may threaten life, health or property, the Governor may declare an energy emergency, which lasts 14 days unless extended by a joint resolution of the legislature. During an emergency, the Governor may implement programs for the mandatory allocation, production, curtailment, conservation, and consumption of energy. He may suspend or modify existing pollution control standards.

4.1.4. CONSERVATION, ALTERNATIVE ENERGY SOURCES AND RENEWABLE RESOURCES

Energy supply limitations correspond to the finite, non-renewable nature of fossil fuels and the ever increasing costs of large scale energy production and distribution. The following statutes address the alternatives of energy conservation and alternative, renewable forms of energy and energy supply systems.

4.1.4.1. ENERGY CONSERVATION AND ALTERNATIVE ENERGY SOURCES (Section 84-7401 et seq. R.C.M. 1947)

Tax payers are permitted to deduct a portion of certain capital investments made in buildings in order to conserve energy when computing individual income tax or the corporation license tax. The maximum deduction allowed for improvements in an individual's residence is $1,800 while the ceiling for a non-residential building is $3,600. The Department of Revenue receives applications for the deduction and may consult with DNRC for advice.

A public utility may install energy conservation materials in a customer's home or business, and the customer may pay back the utility in installments added to his or her monthly utility bill. The utility may charge no more than seven percent interest, but may claim the difference between interest received and the prevailing market rates as a credit against its electric energy producer's tax (Title 84, Chapter 16), or its corporation license tax (Title 84, Chapter 15).

Section 84-7409 establishes an alternative energy research and development account that is funded by a portion of the coal severance tax (see

Tables IV-1 and IV-2 in Section 4.1.5.1. for precise amounts). DNRC administers grants from this fund, and is given the option of appointing an Alternative Energy Advisory Committee composed of Montana citizens with expertise in alternative energy matters. Any person may apply to DNRC for a grant to support research, development or demonstration of alternative energy systems. Grants are awarded for one year, and preference may be given to projects which have been approved for federal funding and require matching money, or to independent research centers. All information resulting from funded research is public property. DNRC will make a report to each legislative session on the conduct of the fund program.

A resident individual may reduce his individual income tax liability through a credit equal to a portion of the installed cost of a recognized non-fossil form of energy generation (i.e. solar heat, wind, solid wastes, decomposition of organic wastes, or small water power systems). The credit allowed is ten percent of the first $1,000 and five percent of the next $3,000 expended. The maximum credit allowed is $250. The percentages will be halved if the federal government initiates a similar incentive (which it did with the passage in 1978 of the National Energy Act). The program will remain in effect through 1982.

4.1.4.2. RESIDENTIAL WEATHERIZATION (Section 35-601 et seq. R.C.M. 1947)

The 1977 Legislature allocated $300,000 from the interest earnings of the coal tax trust fund to match federal funds available for home weatherization assistance to low-income people. No more than five percent of the total state and federal money may be used for administration of the program by the Department of Community Affairs. Half of the remaining money is allocated among the Governor's substate planning districts in proportion to the number of eligible households in each district, and half is allocated in proportion to the value of in-kind services contributed by local agencies and persons.

4.1.4.3. STATE BUILDING CODE (Section 69-2111 et seq. R.C.M. 1947)

This statute directs the Department of Administration to adopt rules for the inclusion of energy conservation standards in the state building code by March, 1978. The standards have been adopted.

4.1.4.4. STATE SOLID WASTE MANAGEMENT ACT (Section 69-4011 et seq. R.C.M. 1947)

The purpose of this law is to encourage good management of solid waste and conservation of natural resources through promotion of solid waste recycling systems for energy production purposes where economically feasible. The act mandates the preparation of a state solid waste management plan, in which emphasis is to be placed on: maximum possible recycling of solid waste resources; maximum possible utilization of the private sector in constructing and operating solid waste facilities; and allocating to local authorities primary management and decision responsibilities. The Department of Health and Environmental Sciences administers the program and is directed to provide financial and technical advisory assistance to local governments and other persons in the planning, design, construction and operation of facilities and systems.

Solid waste management loans are available from DHES to local governments to help finance the planning of solid waste systems. In allocating loan funds, DHES bases its priorities on: 1) the degree of utilization of private enterprise; 2) the size of the population to be served; 3) the financial viability of the project; and 4) the severity of environmental and health problems being addressed. Loans are available only if adequate financing is not available from other sources. The loan program is discussed in Section 5.8.1.

4.1.4.5. RENEWABLE RESOURCE DEVELOPMENT (Section 89-3601 et seq. R.C.M. 1947)

This statute provides for taxation of nonrenewable resources to support development of renewable resources to insure preservation of the state's natural heritage and the quality of its land, air, water, fish, wildlife, and recreational opportunities.

The Department of Natural Resources and Conservation administers the program and may recommend to the Governor that grants and loans from the renewable resource development account be made to any department, agency, board, commission, or other division of state government, although unless specifically authorized by the legislature, no bond proceeds shall be used for the purpose of making grants. Loans may be approved to any local government body along with state agencies. Grants re-

quested at the local level require sponsorship by a division of state government. Proposals must receive legislative approval before funding is authorized. Funding may be provided: for the purchase, lease, or construction of projects for the conservation, management, utilization, development or preservation of the land, water, fish, wildlife, recreational and other renewable resources in the state; for the purpose of feasibility and design studies for such projects; for development of plans for the rehabilitation, expansion or modification of existing projects; and for such other and further similar purposes as the legislature may approve.

The state board of examiners has authorized the sale of up to $5 million in state revenue bonds as a funding source for loans from the renewable resource development program. Principal and interest from loans, proceeds from the coal severance tax and income from other sources authorized by the legislature are placed in the sinking fund account to meet bond obligations and to accumulate a reserve for future obligations.

4.1.5. ENERGY-RELATED TAXES

Montana has traditionally derived revenues from energy extraction and conversion activities through taxes such as the oil and gas producers tax, the gas and petroleum net proceeds tax, the electrical energy producers license tax, and the gasoline dealers license tax. The coal severence tax is a recent addition to this group of taxes. Allocation of the revenues from this tax constitutes a major element of the state's energy policy.

4.1.5.1. SEVERENCE TAX ON COAL (Section 84-1313 et seq. R.C.M. 1947)

The first section of the coal severance tax act notes that differences between coal and metals or petroleum justify a different type of taxation. The purposes of the tax are: 1) to allow severance taxes on coal production to remain a constant percentage of the price of coal; 2) to stabilize the flow of tax revenue from coal production to local governments; 3) to simplify the structure of tax revenue from coal production and improve predictability of revenue projections; and 4) to establish tax categories which recognize the unique character of coal. This act repealed the coal mines license tax and deleted coal from the provisions taxing the net proceeds of mines.

The coal severance tax actually embodies two tax schedules. One is based on heat value of the coal and the number of tons mined; the other is based on contract sales price and heat value. The tax to be paid is the greater of the two amounts calculated under the alternative rates. The first 20,000 tons of coal produced by a person in each year is exempt from the tax. For practical purposes, it is possible to say that most of Montana's coal is taxed at 30 percent of its contract sales prices.

In 1976, Montana voters approved an amendment to the constitution to create a permanent trust fund with part of the coal severance tax revenues. Until 1980, 25 percent of all tax revenue will be placed in the trust fund; thereafter, 50 percent of all revenue will be placed in trust. The remaining revenue is allocated to the accounts listed in Table IV-1. The agency which administers each account is also noted.

TABLE IV-1
DISTRIBUTION OF COAL TAX REVENUE

	Before 1980	After Jan. 1, 1980	Administrative Agency
Constitutional Trust Fund	25%, remaining 75% apportioned as follows.	50%, remaining 50% apportioned as follows	
Coal producing counties	2% of tax paid for coal mined in the county	0	Counties
Alternative energy research development and demonstration account	2.5%	5%	DNRC, Energy Division
Local impact and education trust fund*	26.5%	37.5%	DCA, Coal Board
Coal area highway improvement account*	13%	0	Highways
State equilization aid to public schools	10%	10%	Public Instruction
County land planning account	1%	1%	Counties
Renewable resource development bond account*	2.5%	2.5%	DNRC
Park acquisition	1.25%		Fish & Game
Park trust fund	1.5%	5%	Fish & Game
General Fund	50%	39%	

Source: Chapter 540, Laws of 1977
* These energy-related programs are discussed by agency in Section 5 of this report

Table IV-2 indicates the funding balance for each account as of May 1977 and also shows legislative appropriations for each account for the 1979 biennium based on projected revenues. Additional discussion of the coal tax and current litigation challenging its validity is presented in Section 10.2.

TABLE IV-2
APPROPRIATIONS OF COAL TAX REVENUE

Fund	Balance May 1977	1979 Biennium Revenue Projection	1979 Biennium Appropriation	Trust Fund Allocation
State General Fund	-0-	$ 30,900,000	$30,900,000	
Constitutional Trust Fund	-0-	25,750,000		$25,750,000
Local Impact & Education Trust Funds				
Local Impact	$ 6,283,559	13,027,159	13,537,445	
Education Trust	$ 3,590,605	7,444,091		7,444,091
Coal Area Highway Development	3,590,605	10,042,500	9,492,499	
Public School Equalization		7,725,000	7,725,000	
Renewable Resource Development	897,651	1,931,250	1,245,961[1]	
Alternative Energy Resource Development	897,651	1,931,250	1,748,312	
Coal Producing Counties	-0-	1,545,000	1,545,000	
State Parks				
Acquisition Operation & Maint	372,112	965,625	1,583,265	
Trust for Park Acquisition	372,112	965,625		965,625
County Land Planning	359,060	772,500	822,670	
	$16,363,355	$103,000,000	$68,600,152	34,159,716

Source: Office of Legislative Fiscal Analyst 1977
[1] In addition to the appropriation authority for renewable resource grants and operations the legislature approved $2,000,000 in renewable resource development loans from the sale of bonds

4.1.5.2. RESOURCE INDEMNITY TRUST ACCOUNT (Section 84-7001 et seq. R.C.M. 1947)

The law establishing the trust account states that "it is the policy of this state to provide security against loss or damage to our environment from the extraction of nonrenewable natural resources."

The trust account, which is administered by the Department of Revenue, is established within the trust and legacy fund. An annual tax of $25, plus half of one percent of the amount of gross value of the product in excess of $5,000, is levied on mining operations in the state. All nonrenewable merchantable minerals extracted from the surface or subsurface of Montana land are taxed.

Until the account reaches $10 million, all net earnings are added to it. Once the account reaches $10 million, then only net earnings may be appropriated until the account reaches $100 million. After $100 million the legislature must appropriate all net earnings and all receipts, but the balance may never fall below $100 million. The Board of Investments has discretion for investment of all money paid into the account. The funds may be put to any use which will "improve the total environment and rectify damage" to it. As of June 30, 1978, this account contained $10,637,557, with income totaling $754,068.

4.1.5.3. GASOLINE DEALERS AND DISTRIBUTORS LICENSE TAX AND SPECIAL FUEL TAX (Section 84-1830 et seq. R.C.M. 1947)

A tax of 10¢ per gallon is levied on the sale of all diesel fuel, and 8¢ per gallon is levied on the sale of gasoline. Revenue from these taxes is earmarked for the Department of Highways for road construction and maintenance. A small allocation goes to the Department of Fish and Game for development of snowmobile trails and recreation sites, many of which are located on waterways and thereby enhance boating recreation. Fuel distributors must be licensed by the Department of Revenue and submit regular reports of sales to the Department. The gasoline tax, collected by distributors and passed on to the consumer as part of the sales price, is turned over to Revenue which then allocates the funds. The special fuels (diesel) tax is paid directly by the consumer. A special fuel user may apply to the Department of Revenue for credit for taxes paid on fuels exported for use outside the state or which were not used to propel vehicles on public highways. The amount is first credited on any amounts then due and payable from the user and any remaining credit is to be paid directly to the user by the state treasurer.

4.1.5.4. OIL AND GAS PRODUCERS TAX (Section 84-2202 et seq. R.C.M. 1947)

Every person producing or extracting oil or natural gas must pay a severance tax on the total gross value of marketable oil or gas produced. Oil is taxed at 2.1 percent of the first $6,000 produced from each lease, and 2.65 percent of the gross value of the production in excess of that amount. To encourage new production, gas wells begun before 1981 are entitled to a three-year exemption from half this tax, but only if the gas produced will be distributed by a system serving a majority of Montana consumers or at least 10,000 customers in Montana.

4.1.5.5. ELECTRICAL ENERGY PRODUCERS TAX (Section 84-1601 et seq. R.C.M. 1947)

This tax applies to anyone engaged in the production of electricity for sale, exchange or barter. Under a 1977 amendment the tax is now levied on the basis of $.002 per net kilowatt-hour produced in Montana. Federal generation is exempt. The revenue derived from the tax is allocated to the general fund.

4.1.5.6. CLASSIFICATION OF PROPERTY FOR TAXATION (Section 84-301 et seq. R.C.M. 1947)

New Industry (Section 84-301.19) New industrial development in Montana is encouraged, subject to certain conditions and definitions, through a low property tax classification. New industry means any person, corporation,...or other group that establishes a new plant or plants in Montana for operation of new industrial endeavor, as distinguished from an expansion, reorganization or merger of an existing industry. Property refers to plant including land, buildings, machinery and fixtures, except mobile machinery, which a new industry uses during its first three years of operation. The classification is limited to industries that manufacture, mill, mine, produce, process or fabricate materials or that do work in which materials unserviceable in their natural state are extracted, processed or made fit for use. Property

which will create adverse impact on existing state, county or municipal services, considering the number of people to be employed and the size of the community involved, does not qualify. The Department of Revenue is responsible for making this determination upon receiving an application for new industry classification and upon consultation with the commissioners of the affected county.

4.1.5.7. NATURAL GAS AND PETROLEUM NET PROCEEDS TAX (Section 84-6201 et seq. R.C.M. 1947)

The net proceeds tax is levied and collected by those counties which have operations producing oil and gas. Allowable deductions from gross income include royalties and the costs of production, including reclamation. (Recipients of royalties must, however, pay the net proceeds tax.) The amount due is based on tax levies determined by county commissions. Tax revenues go to the county in which the drilling operation is located.

4.1.5.8. COAL GROSS PROCEEDS TAX (Section 84-1320 et seq. R.C.M. 1947)

Each person engaged in mining coal must annually file with the Department of Revenue a statement of the gross yield from each coal mine as derived from the contract sales price. The Department transmits the statement or information of the gross proceeds to the county assessor of each county in which the coal mines are situated. This tax is levied similar to other forms of property tax.

4.2. PROSPECTIVE FEDERAL ENERGY LEGISLATION

The energy legislation summarized in this section was introduced in Congress in 1978. These bills were not enacted but are expected to be reintroduced in 1979.

4.2.1. STATE ENERGY MANAGEMENT AND PLANNING (SEMP)

States are being required to implement a growing number of federal energy programs, including conservation plans, the Energy Extension Service (EES), coal conversion, solar demonstration and certain aspects of utility regulation as well as new programs contained in the National Energy Act. Since states often do not have adequate data, staff or technical capability to handle these programs, the administration is recommending additional financing for state: 1) energy supply and demand planning (i.e., forecasting); 2) assessment of energy facility needs; 3) conservation; 4) energy emergency preparedness; and 5) development of new supply initiatives.

DOE submitted the proposed State Energy Management Planning Act (SEMP) to Congress in July 1978 to address the five areas noted above. The measure consolidates: 1) the two conservation acts described in Section 5.3.2.2A; 2) EES; and 3) certain energy planning provisions into a single "core" grant program. Funds would be appropriated annually for five years and allocated to the states based on population (65%) and energy production (10%), with the remainder (25%) to be allocated equally to all states. Local governments and Indian tribes may also receive a portion of these funds. States would be required to match 20 percent of the federal funds received; 50 percent of the federal funds must be used for conservation purposes. The bill would establish a single application process for all DOE grant programs.

Within nine months of receiving an initial federal grant, a state would be required to develop an energy plan which must include: 1) a description of state energy conditions, objectives and policies for energy forecasting, availability of energy sources for in-state consumption and for transport to other states, and projections of electric and other major energy facility generation; 2) a description of management coordination and a financing plan; 3) an energy emergency plan; 4) thermal building standards; 5) Energy Extension Service activities; and 6) a description of data systems. States would be required to use existing local government plans concerning transportation, growth management, economic development, environmental protection and energy to the maximum extent practicable and to develop procedures to assure the active participation of local governments in developing the state plans. Plans would be submitted to DOE for review on a biennial basis.

4.2.2. ENERGY IMPACT ASSISTANCE

This proposed legislation would establish a new financial assistance program for states, Indian tribes and local governments to meet needs for public services arising from large-scale energy development. Existing federal programs do not address these needs and state and private industry efforts have been only partially successful.

Grants would be made available annually over a five year period to states, local governments and Indian tribes for planning for orderly development and establishing revolving funds to meet front-end financing needs for public facilities, services and housing. Potential grant recipients would be responsible for projecting local energy development, assessing expected impacts and developing financial plans for meeting community needs. Also, recipients would be required to provide matching funds. An allocation formula would provide incentives to states to institute mechanisms such as severance taxes, siting laws and other initiatives to encourage industry participation in addressing impacts. In addition the federal government would consult with states, local governments and Indian tribes before major federal energy development decisions are made and make data on public and private development plans available.

4.2.3. NUCLEAR SITING AND LICENSING ACT

The U.S. Department of Energy prepared this legislation to reform nuclear regulatory and licensing procedures and reduce the length of the process. At present the Nuclear Regulatory Commission is required to consider all issues relating to a proposed nuclear plant, including site suitability, plant design and requirements of both the National Environmental Policy Act and the Atomic Energy Act. The proposed legislation provides for earlier resolution of a number of key steps.

Prospective sites could receive early approval, separate from a specific construction proposal. Approvals would be valid for ten years and could be renewed. Approval of standardized facility designs, without a proposal for a specific site, could also be obtained and would eliminate the need for design studies of each proposed facility. Requirements for construction permits and operating licenses would be combined if an application provides enough information to support the issuance of both.

Applicants would be required to publish a notice of intent to file an application six months in advance of actual filing. States would be authorized to determine the need and certain aspects of environmental acceptability of proposed facilities, excepting issues pertaining to radiological health and safety. The Nuclear Regulatory Commission would hold adjudicatory hearing to address health and safety issues and a combination adjudicatory/-legislative hearing for National Environmental Policy Act determinations not addressed at the state level.

All hearings, except those regarding site permits, standarized designs and combined construction permits and operating licenses, would be upon request rather than mandatory. Hearings would be limited to issues for which there was no prior opportunity for a hearing and to issues where a prima facie showing of significant new information indicates a significant risk to public health and safety.

The legislation would also provide for a five year pilot program for funding persons who wish to intervene in the hearing process.

4.2.4. NUCLEAR WASTE MANAGEMENT

Several bills were introduced in the Senate and House on nuclear waste management issues. Proposals range from comprehensive management strategies to specific legislation dealing with mill tailings in particular states. Other initiatives propose detailed revisions in Nuclear Regulatory Commission licensing procedures relating to waste materials. The Department of Energy is preparing an extensive task force study of nuclear waste management. No action on the proposed bills is anticipated until DOE's study is completed.

4.2.5. PACIFIC NORTHWEST ELECTRIC POWER PLANNING AND CONSERVATION ACT

This legislation, introduced by Senator Jackson of Washington, proposes a comprehensive power planning strategy for the Pacific Northwest. Although Congress did not pass this bill in 1978, it will probably be reintroduced in 1979. The bill is summarized in the discussion of regional power planning in Section 6.2.

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MONTANA STATE GOVERNMENT

This section summarizes the state government programs which administer Montana's energy policies and statutes.

5.1. GOVERNOR'S OFFICE

The Governor is ultimately responsible for implementing the state's laws, for all executive branch actions and for recommending policy to the legislature for its consideration. In May 1978 the Governor organized the *Committee for Balanced Growth* in order to provide a vehicle for policy formulation and to focus state planning and legislative efforts. In creating the committee the Governor stated, "The concept of balanced growth—that goal of viable economic development combined with the protection of the Montana environment—is the single concept most likely to affect Montana and Montanans in critical ways and for years to come." The committee is composed of the executive department directors and is subdivided into the following four task forces: 1) Energy, Environment and Natural Resources; 2) Urban/Rural Development; 3) Human Services; and 4) General Government.

Energy, Environment and Natural Resources Task Force. This task force includes the Departments of Natural Resources and Conservation, State Lands, Fish and Game, Livestock, Agriculture, and the Environmental Sciences Division of the Department of Health and Environmental Sciences. The task force has identified a number of key topics which are being analyzed in terms of balanced growth objectives and alternative courses of action open to the state. The topics include: a review of the Major Facility Siting Act and recommendations for procedural improvements; development of the capability to forecast future energy needs and identify geographical areas incompatible with development; review of the Montana Environmental Policy Act and the environmental impact statement process with recommendations for streamlining the permitting process and improving effectiveness; planning for additional hydro-electric generation at state dams; and determining the potential for expanding resource development on state lands.

5.2. LIEUTENANT GOVERNOR'S OFFICE

The Governor has assigned the Lieutenant Governor responsibility for developing Montana's energy policy and coordinating activities of the executive departments concerned with energy and natural resource related matters.

Executive Branch Task Force on Energy. This task force is composed of middle level management personnel from the various executive branch energy programs. Its purpose is to serve as a policy forum to make recommendations to the Governor for improving the management and effectiveness of the state's energy programs. The task force will be concerned with both federal and state energy issues.

International Energy Issues. The Lieutenant Governor represents Montana in proceedings concerning proposed energy developments in Canada which are located near Montana's border. The International Joint Commission is the forum for negotiations between the United States and Canada in all matters affecting the international boundary.

5.2.1. POPLAR RIVER

During the fall of 1974 the Saskatchewan Power Corporation, owned by the citizens of Saskatchewan, proposed the establishment of a four unit, 1200 MW thermal electric generating complex, including a reservoir with 33,000 acre-ft storage capacity on the East Poplar River and a new lignite coal mine near Coronach, Saskatchewan, just north of the international boundary. This complex will affect air quality and water quantity and quality in northeastern Montana.

The first unit of the generating complex is scheduled to go on-line in early 1979. In February 1977 Montana called for a moratorium on construction of the second unit until baseline environmental studies being conducted by the U.S. Environmental Protection Agency are completed in early 1979. The Canadian government has not made a commitment to the moratorium proposal and work on Unit 1 is continuing, but Canada has stated that no interim project decisions on related activities will be undertaken that will jeopardize EPA's baseline work.

The water quantity issue has received primary attention to date. The International Joint Commission (IJC) issued a water apportionment report for the Poplar River Basin in April, 1978. The IJC recommended that the aggregate natural flow of waters in the basin which cross the international boundary be apportioned equally between the United States and Canada. Montana supports the recommended apportionment on the condition that any agreement on this issue will not preclude future negotiations to resolve water quality issues. In 1977 the IJC established the International Poplar River Water Quality Board and charged it with the task of determining the water quality impacts the proposed development will impose. A formal water apportionment agreement has been postponed until the water quality study results are available in 1979.

Air quality matters are outside the jurisdiction of existing treaties and agreements, but the two governments have agreed to discuss this topic when EPA completes preparation of the relevant baseline and air modeling information. Future negotiations must address the effect that United States' concerns and air standards will ultimately have on the pollution control program of the Canadian utility.

The 1977 Legislature passed a resolution urging the federal government to negotiate a treaty with Canada to address air pollution near the international boundary. A second resolution establishes a state policy that the plants should not violate federal or state pollution standards, that the Saskatchewan government should install control technology on the plants, and that transboundary impact matters should be referred to the IJC. SB 393, also passed in 1977, amends Montana's air and water pollution laws to allow enforcement for violations against Canadian residents and others not residing in Montana.

5.2.2. CABIN CREEK

Cabin Creek, a tributary of the North Fork of the Flathead River, is the site of a proposed coal mine in southeastern British Columbia, eight miles north of the Montana border. Sage Creek, Ltd., a subsidiary of Rio Algom Mines, Ltd., proposed the mining complex in 1975. The coal is located in five 80-foot seams which contain an estimated 60 million tons. The deposit is low sulfur, has a relatively high BTU content, and is high quality metalurgical coking coal.

The company plans to ship the coal by rail either through the United States or British Columbia to the West Coast where it will be shipped to Japan. Although the company is continuing to acquire the necessary Canadian permits to proceed with the mine, extensive development in the area will depend on improved market conditions in Japan. The State of Montana has been monitoring this project since its inception and has been involved in extensive discussions with the Canadian government, the International Joint Commission, and the U.S. State Department to insure that the water quality of the North Fork is preserved.

The 1975 Legislature directed DNRC to conduct a study of the upper portion of the Flathead River drainage and northern portion of Flathead Lake, and to evaluate, as a function of time and location, the probable impact of development of the Cabin Creek coal deposits and attendent urbanization of the headwaters region. The study, entitled "Upper Flathead River Basin Study", was published in January 1977. It concluded that if Canadian rules and regulations are strictly enforced, Cabin Creek development would not significantly impact the natural environment of the North Fork except, potentially, in the areas of water quality, channel morphology and fish and wildlife habitat. Seepage from settling ponds, drainage ditches and canals and potential diversion of a creek are the key management issues. Social and economic impacts would be minor if project workers reside in Canada. However, if workers reside in the United States, there could be significant impacts on the North Fork area's community infrastructure and facilities services base. With regard to the legal and institutional framework associated with development at Cabin Creek, the report concluded that a more liberal interpretation of the Boundary Waters Treaty between Canada and the United States is needed to allow for formal interaction and negotiation of problem areas before actual injury or conflict occurs.

5.2.3. ENERGY EMERGENCY PREPAREDNESS

Montana is dependent on hydroelectric generation for a substantial portion of its energy needs. Hydroelectric facilities account for approximately 63 percent of the state's installed electric generating capacity. In response to drought conditions in 1977 which created the potential for electrical energy shortages, the Governor's office drafted rules to delineate procedures for handling electrical energy emergencies. The rules implement energy emergency legislation passed in 1977 (see Section 4.1.3.).

The rules would become effective upon formal declaration by the Governor that an energy emergency exists. In an emergency, the Governor will create an emergency energy curtailment office (EECO) within the Lieutenant Governor's Office to handle day-to-day implementation of the rules. The rules outline three stages of mandatory energy use curtailment which are progressively more restrictive. At Stage 1, energy deficient utilities would be ordered to purchase electricity sufficient to cure the deficiency. Electric consumption in the retail, commercial, industrial and governmental sectors would be restricted to the extent deemed necessary, but without creating more than a minimal impact on employment, production and commercial operations. Consumer restrictions would include space heating, cooling and lighting limitations, and prohibition of lighting for decoration, outdoor sporting events, and business displays and parking lots except during business hours.

Stage 2 procedures would include requests to BPA and owners of generating units to make all excess power available to the regional electrical system for use by deficient utilities, regardless of cost, with provisions for applying to the PSC for passing the cost on to consumers. All consumers would be required to curtail their electrical energy use by a percentage the Governor deems necessary; the amount would then be calculated according to the consumer's energy use during a "base period", which generally would be the twelve month period

ending January 31 of the year in which the curtailment order is made. Stage 3 is the strictest level and may, at the Governor's discretion, involve rotating interruptions of electrical service for all consumers, curtailment of electrical use or shut-down of large industrial consumers, and other curtailment actions deemed necessary and practical.

Exemptions from curtailment would be granted at Stages 1 and 2, and whenever possible at Stage 3, to consumers such as health care facilities, police and fire stations, transportation and communication facilities, other essential service facilities, and also to any consumer to whom EECO finds curtailment would be an unreasonable hardship.

The rules establish procedures for monitoring electrical use at Stages 2 and 3. Consumers may appeal curtailment decisions to EECO, a Citizen's Appeal Board which the Governor will appoint in an emergency, and the courts. Repeated violations of the curtailment restrictions would subject a consumer to penalties which include penalty rates on the electricity used, discontinued service, or, at Stage 3, misdemeanor charges.

During mid-1977 hearings were held in most of Montana's major cities to inform the public of the proposed electrical energy emergency procedures and to gather comments. The rules were subsequently refined to final form, but have not been formally adopted by the Governor.

5.3. DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION

5.3.1. BOARD OF NATURAL RESOURCES AND CONSERVATION

The Board of Natural Resources and Conservation has authority to approve, modify, or deny applications for certificates of environmental compatibility and public need for all energy facilities covered by the Major Facility Siting Act. Table V-1 lists projects which the Board has certified to date. Table V-2 summarizes the status of transmission line projects that are presently being processed.

During the past year a significant portion of the Board's attention has been devoted to allocation of water reservations for the Yellowstone River. Under the 1973 Montana Water Use Act (Section 89-865 et seq. R.C.M. 1947), state and federal agencies, as well as political subdivisions of the state, may apply to the Board of Natural Resources and Conservation to reserve water for existing and future beneficial uses, or to maintain a minimum flow, level, or quality of water. Before an order reserving water may be adopted, the applicant must establish to the Board's satisfaction: 1) the purpose of the reservation; 2) the need for the reservation; 3) the amount of water necessary for the purpose of the reservation; and 4) that the reservation is in the public interest.

A water reservation, when adopted, becomes a water right. However, if objectives of the reservation are not being met, the Board can later modify that water right. In addition, if the use of the reserved water requires diversion or storage, progess must be shown, over time, towards completion of these facilities. Such progress is to follow a previously submitted plan.

The Yellowstone Moratorium (Section 89-8-103 et seq. R.C.M. 1947), which suspended all large applications (diversion of over 30 ft^3/s or storage of over 14,000 acre-ft) for water use permits in the Yellowstone Basin until March 10, 1977. A substantial number of applications associated with future energy-related development in the area were affected. The 1977 Legislature allowed for extension of this deadline until the end of 1978.

The Board held hearings in August and September of 1977 on thirty reservation requests (see Section 5.3.4.2.) and heard final arguments in August 1978. The Board's final decision was announced in December of 1978. The Board set aside over half the Yellowstone's water for wildlife and water quality protection. Of the 8.8 million acre-feet of water flowing through the Yellowstone at Sidney in an average year, the Departments of Fish and Game and Health and Environmental Sciences received 5.5 million acre feet as in-stream reservations. Water left unreserved totaled 1.7 million acre feet. Eight river-front cities received 60,913 acre-feet and irrigation reservations totaled 634,369 acre-feet of Yellowstone and tributary waters. The Board divided the Yellowstone roughly in half for purposes of assigning water use priorities. During periods of drought the cities will have first priority right to the water. Instream reservations above the Big Horn River and irrigation reservations below the Big Horn have second priority. Third and fourth priorities, respectively, are granted for irrigation above the Big Horn and instream reservations below the Big Horn. Lowest priority is for water storage reservations totaling 1.112 million acre-feet.

TABLE V-1
COMPLETED MAJOR FACILITY SITING ACT APPLICATIONS

	Applicant(s)	Type	Size (MW/kV)	Approximate Proposed Length (miles)	Date Received	Date Certified	Centerline Approval
Major Facilities							
Anaconda Arbiter Plant & Associated Facilities	MPC	Plant & Transmission	25 MW 230 kV	5.4	5/14/73	7/20/73	
Arbiter Expansion & Electric Furnace	MPC	Plant & Transmission	57.5 MW 230 kV	4.0	7/23/74	3/10/75	
Colstrip Units 3 & 4	MPC, Puget Sound Power & Light, Portland General Electric, Washington Water Power, & Pacific Power & Light	Coal-fired electric generating plant	1400 MW	NA	6/6/73	7/22/76	
Colstrip Units 1 & 2 Associated Facilities	MPC & Puget Sound Power & Light	Water supply system		30	6/29/73	3/1/74	
Transmission Facilities							
Billings-Yellowtail	Pacific Power & Light		230			5/4/73	
Billings Eastside Substation	MPC		100	.42	5/14/77	7/20/73	
Laurel-Bridger	MPC		100		4/20/73	9/73	
Laurel-Billings	MPC		100	22	5/14/73	9/73	
Colstrip-Broadview	MPC & Puget Sound Power & Light		230	110	6/29/73	11/15/74	6/6/75 12/5/75
Colstrip-Broadview	MPC[1]		500	113			12/12/77
Circle-Flowing Well	McCone Electric Coop.		69	34	3/13/74	9/13/74	
Bridger-Roberts	Beartooth Electric Coop.		50/69	15	4/29/74	5/16/75	
Continental Oil	Continental Oil		100	1.0	12/31/74	5/16/75	
Wilsall-Clyde Park	MPC		161	11.4	12/31/74	6/26/75	12/5/75
Ulm	MPC		100	2.0	10/25/74	3/10/75	
Broadview-Alkali Creek	MPC		230	19	12/31/74	1/28/77	4/6/77
Anaconda-Hamilton	MPC		230	65	12/31/74	9/16/77	[2]

Source: DNRC, Energy Division

[1]The applicants also include the utility consortium which proposed Colstrip Units 3 and 4.
[2]Application still requires centerline studies and consideration of a system alternative.

TABLE V-2
MAJOR FACILITY SITING ACT APPLICATIONS IN PROCESS[1]

Facility	Applicant	Size (kV)	Approximate Proposed Length (miles)	Status
Clyde Park-Dillon	MPC	161	193	Centerline approval was granted for the Clyde Park to Bozeman "B" line in July 1978. The other segments are presently under litigation.
Broadview-Glengarry	MPC & Fergus Electric Coop.	100	118	One 22.5 mile segment of this line received centerline approval in September 1976; remaining segments are under study.
Broadview-Hot Springs	MPC[2]	500	320	The centerline is approved to Dry Creek, east of Townsend. Upon MPC's request, centerline studies will not proceed west of Helena until the applicants decide upon a course of action with regard to Colstrip Units 3 & 4 and until federal agencies complete a study of alternative transmission routes.
Troy-Mt. Vernon	Northern Lights, Inc.	115	18	Draft environmental impact statement released September 1978.

Source: DNRC, Energy Division
[1]All applications in this table are transmission facilities.
[2]The applicants also include the utility consortium which proposed Colstrip Units 3 and 4 as noted in Table V-1.

5.3.2. THE ENERGY DIVISION

A major reorganization of energy related programs in state government became effective July 1, 1978 when most of the functions of the Montana Energy Office were transferred to the Department of Natural Resources and Conservation and merged with the Energy Planning Division. The reorganization was undertaken in order to consolidate as many of the state's energy programs as possible within a single organizational unit.

The new agency is known as the Energy Division and is organized as shown in Figure V-A. Originally located in the Montana Energy Office, the Energy Extension Service and Energy Research Clearinghouse are special energy information programs under the direct supervision of the division administrator. Most of the staff and activities from the Energy Planning Division are included in the Planning Bureau of the new agency, along with the fuel allocation program and the energy forecasting and energy research and data activities which were originally housed in the Energy Office. The Conservation and Renewable Resources Bureau includes the energy conservation program and solar energy program from the Energy Office and the Alternative Renewable Energy Sources program from the Energy Planning Division.

The following sub-sections will discuss each program of the Energy Division and will also present information concerning special research projects.

A. Energy Research Clearinghouse

This program monitors all on-going and recently completed energy research occurring in and for the State of Montana. Its central purposes are to: 1) facilitate communication among energy researchers

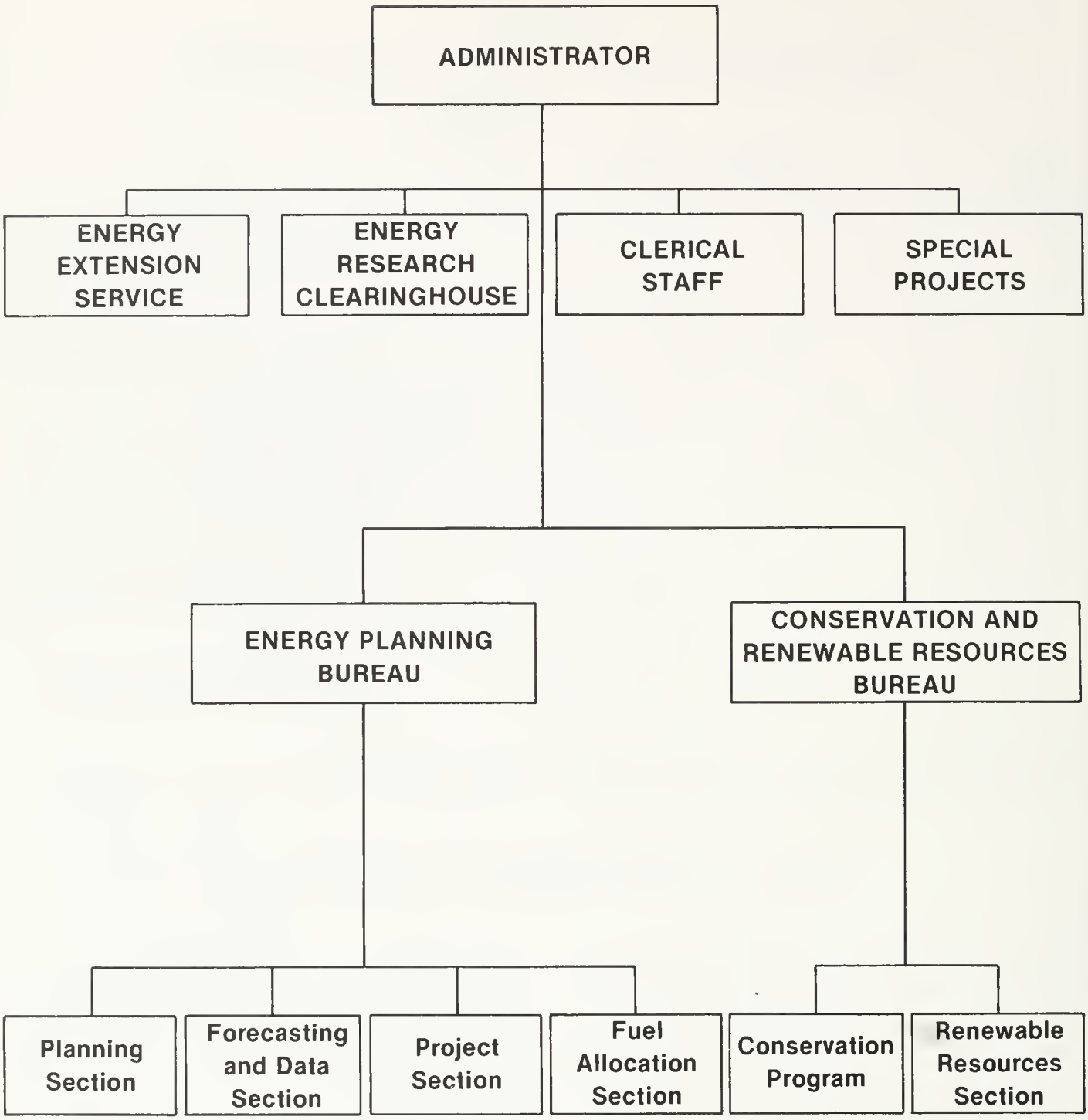

FIGURE V-A ENERGY DIVISION ORGANIZATIONAL CHART

in Montana; 2) reduce the amount of duplicative research; 3) provide funding agencies with a basis to consider funding additional research; and 4) make research results available to all interested persons. Information concerning the research projects is published annually in a comprehensive report entitled, *Directory of Montana Energy Research and Development Projects*. The first edition of this report contained 632 project listings. Additionally, the program provides a search and referral service for individuals and agencies seeking current information about energy-related projects.

This program is coordinated with federal efforts to catalog and exchange energy research information, including the Western Information Network on Energy (see Section 6.5). Information is regularly provided to the Old West Regional Commission for inclusion in the Oak Ridge National Laboratory's Energy Research and Development Inventory. A questionnaire designed to measure the program's usefulness and to determine future directions and improvements in the system has been circulated to persons who have used the program in the past.

B. Energy Extension Service

The Energy Extension Service (EES) is a federally funded information and outreach program designed to encourage small energy users to make more efficient use of energy and to convert to renewable energy. The U.S. Department of Energy (DOE) has funded a pilot program in ten states. The remaining states, of which Montana is one, have received small grants to monitor the progress of the pilot states and to develop their own plans. Following Congressional review of the pilot program, EES is expected to be expanded nationwide in 1979. The Montana EES program began in April, 1978. Primary tasks undertaken thus far have included monitoring the pilot state programs and investigating potential resources in Montana for EES.

Most of the services offered by the pilot states are similar to those provided by other government conservation programs; however, EES has a unique approach to information dissemination which includes emphasis on: direct, personalized services; close coordination among various segments of the EES programs and between EES and other conservation programs; and service as an ombudsman on energy matters. The two state programs which may have the most relevance to Montana are those in Washington and Tennessee, both of which have concentrated their EES programs in a limited number of communities, with the intent of maximizing the program impact and clearly demonstrating the social benefits of conservation.

In preparation for a Montana EES, a series of meetings have been held with representatives of a number of Montana organizations and field work has been conducted in towns across Montana. Talks have been held with the Cooperative Extension Service at MSU to arrange coordination between the two programs and to investigate the possibility of EES working through CES in some instances. Meetings have also been held with representatives of the university and the library systems for purposes of coordinating technical supports. The Chamber of Commerce, the Montana Small Business Association, the Alternative Energy Resources Organization, and the Human Resource Development Councils have been contacted for information about specific audiences in Montana. A conference on earth-sheltered housing (for the building industry) and a series of seminars on community energy plans (for local governments) have helped EES planning in becoming more concrete and specific.

C. Special Projects

Cogeneration-the dual use of an energy source for electrical generation, process heat, mechanical energy, agricultural benefit or some other beneficial purpose that normally would be lost—is the subject of a survey effort in Montana. In early 1978 the Pacific Northwest Regional Commission an organization of the Pacific Northwest states, contracted for a survey of industrial waste heat utilization in the region. The Bonneville Power Administration is also participating in the contract, and is particularly concerned with potential usage of fuel from industrial waste for electrical generation and usage of heat waste from thermal generation as an energy supply for industrial processes.

Engineers from BPA and the Energy Division contacted the seventeen Montana industries listed in Table V-3 (located in BPA's Montana service area) in August 1978 to discuss cogeneration and solicit information equivalent to that collected by the contractor in Washington, Oregon and Idaho. Attempts were made to include three other industries in the survey (Equity Supply, Kalispell; Stauffer Chemical, Butte; Eddie's Bakery, Missoula) but contact has not resulted in enough information to include them at this time.

Industries consuming in excess of 200 million BTU's per year were contacted because these users generally have more potential for economic use of heat-recovery devices. Also, since their energy bill represents a substantial percentage of overall costs, such users may be more willing to invest in a program to reduce costs.

TABLE V-3
INDUSTRIES SURVEYED FOR COGENERATION POTENTIAL

	Company	Location
1.	Hoerner Waldorf	Missoula
2.	John R. Daily Inc.	Missoula
3.	Missoula White Pine Sash Company	Missoula
4.	American Dental Plating Company	Missoula
5.	Louisiana-Pacific Corporation, Particle Board Division	Missoula
6.	Dell-Conner Lumber Inc.	Darby
7.	Evans Products Company	Missoula
8.	Anaconda Company Copper Smelter	Anaconda
9.	Pyramid Mountain	Seeley Lake
10.	Champion Building Products-Champion International Corporation	Bonner
11.	Diamond International Corporation, Lumber Division	Superior
12.	Flodin Lumber Company	Plains
13.	St. Regis Paper Company	Libby
14.	W. R. Grace & Coconstruction Products Division	Libby
15.	Plum Creek Lumber Company	Columbia Falls
16.	Stoltze Lumber Company	Columbia Falls
17.	Anaconda Company, Aluminum Division	Columbia Falls

Source: DNRC, Energy Division

Information requested from these Montana industries includes descriptions of equipment and engineering processes, economic data and managerial attitudes toward cogeneration. The information has been reviewed to estimate the probable impact associated with development of these energy sources. Results were delivered to the contractor in November 1978 for compilation of a report which will combine the Montana data with information for sites located in the Pacific Northwest.

Presently installed cogeneration facilities in Montana account for 10 MW of power. Based on contact with the seventeen industries listed in Table V-3, BPA estimates future cogeneration potential at 44 MW. The next stage of study will involve detailed engineering and economic evaluations, and where appropriate, cogeneration systems will be identified for each feasible site with accompanying schematics, performance analyses and a determination of specific investment costs.

Depending on the results of this initial program, a similar survey of cogeneration potential may be instituted statewide during the coming year.

D. Pacific Northwest Regional Energy Planning

The Lieutenant Governors Office and the Energy Division have been involved in on-going efforts to resolve problems and develop a decision-making framework for long term energy planning in the Pacific Northwest. The principal issues and proposed federal legislation are discussed in Section 6.2. Through the Energy Task Force of the Pacific Northwest Regional Commission, Montana officials have been meeting with their counterparts from Oregon, Washington and Idaho to identify issues and discuss alternative courses of action.

All of the states recognize the need for a regional approach to solve the Northwest's energy problems and there is agreement that federal legisla-

tion must not be passed without the full participation of the affected states. The states also agree that planning to meet load growth in the Northwest must reflect the full range of alternatives, including modifying demand through pricing and conservation and increasing supply through alternative energy sources as well as conventional generation. There is profound disagreement, however, concerning allocation of the various categories of power supply and distribution of the relative costs. Disagreement is also evidenced over the degree of public accountability a regional planning body should have.

5.3.2.1. ENERGY PLANNING BUREAU

The bureau has assumed most of the program functions of its predecessor, the Energy Planning Division, which primarily included administration of the Major Facility Siting Act. The act is summarized in Section 4.1.1.1.

A. MFSA Rules and Regulations

Amendments to the siting rules and regulations were adopted in April 1978. The most substantive addition to the rules is the specifications required for studies of alternative sites for each proposed major facility.

In order to streamline the evaluation process once an application is filed, the new rules provide for optional submission of a preliminary application for DNRC to evaluate for compliance with the act. Once an application is filed, DNRC is empowered to void the application if, after a reasonable period, an applicant fails to submit available, relevant supplemental material requested by the Department.

The new rules specify more detailed content for all types of applications than was previously required. In the past DNRC received this information by request. In particular, applicants for energy generation or conversion plants must provide explanation of data concerning energy loads, flows and resources and the analyses and assumptions used to determine the need for a proposed facility. Detailed cost information is also required. For all types of facilities, including transmission lines, an evaluation of alternative sites, corridors and technologies is required, with documentation of relevant data, including maps and other graphic portrayals as well as documentation of the process used to arrive at the preferred proposal. Further detail has also been specified for the content of long range plans.

The rules contain a new section specifying the content of notices of intent to file an application. The legislature added the notice of intent provision to the siting act in 1977.

B. Long Range Plans

The siting act requires all parties planning to construct a facility (as defined by the act) within the next ten years to file a long range plan with DNRC. Most of these plans are discussed individually in Section 3 as well as listed in Table V-4.

Pipeline Suit. The siting act's jurisdication over pipelines is the subject of a condemnation suit which involves MPC's construction of an interconnecting gas pipeline between the utility's existing facilities at Reedpoint and the Big Coulee field. Although the siting act does not apply to pipelines excepting those associated with a major facility, the court has ruled that MPC may not conduct eminent domain proceedings until it has complied with the siting act's requirements.

C. Fuel Allocation

The Montana Fuel Allocation Office is responsible for alleviating emergency and hardship petroleum fuel problems, assisting end-users of petroleum fuels in making satisfactory supply arrangements, and maintaining on-going contact with oil companies and petroleum dealers. In addition the office handles fuel arrangements for impacted areas, provides technical assistance and advice concerning the state's overall crude oil supply problems, and in the past has assisted interruptible natural gas customers in meeting stand-by fuel needs.

State Set-Aside Operation. The federal Emergency Petroleum Act of 1974, the Mandatory Petroleum Act, associated regulations, and executive orders of Governor Judge provide the basis for the office's operations. Regulations require each prime oil supplier in Montana to set aside three percent of his or her estimated available supply of gasoline fuel for state use in solving individual emergency and hardship fuel problems. A given number of gallons is awarded in each case and when a company's "set-aside" is depleted, no more product can be assigned until the following month.

On the demand side, the office receives applications for a given amount of finished petroleum product which are subsequently logged, verified, and approved, modified or denied. If approved, the oil company involved is directed to provide the applicant the predetermined amount of product.

In 1977 the office handled 268 applications involving 4,341,130 gallons of fuel.

TABLE V-4
LONG RANGE PLANS
MAJOR FACILITIES (UTILITY)

Potential Applicant	Major Facilities	Location	Type	Size	Projected Date of Application
Montana Power Company	Kerr Dam (expansion)	Lake County	Hydro-electric	60-80 MW	1980's[1]
	Buffalo Rapids 2 & 4	Lake County	Hydro-electric	undetermined	
	unsited		Coal-fired electric	330 MW	1981
	unsited		Coal gasification[2]	undetermined	undetermined
Basin Electric Power Cooperative		McCone County	Coal-fired electric generation	440 MW	1979 (second half)[3]
Northern Lights, Inc.	Kootenai Falls	Lincoln County	Hydro-electric	150 MW	1979

MAJOR FACILITIES (NON-UTILITY)

Dreyer Brothers Inc.	Circle West[4]	McCone County	ammonia, methanol-methyl-fuel and synthetic diesel fuel	Up to 35,500 tons per day lignite	1979 (second half)
Farmers Potash Company[5]	Unnamed	Daniels County	Potash-fertilizer	Up to 3,500 tons per day lignite	1979 (first half) (coal using portion)

TRANSMISSION

Applicant	Facility	Size (kV)	Approximate Length (mi.)	Projected Date of Application
Montana Power Company	Great Falls - Conrad	115	60	1979 (first half)
	Laurel - Red Lodge	100	40	1979
	Alkali - Laurel	230	15	1979
	Castle Mountain - White Sulphur Springs	100	17	1979 (first half)
	Roundup - Sumatra	100	50	1980
	Missoula - Hoerner Waldorf	100	20	1979
Montana-Dakota Utilities Company	Scobey area	undetermined		First half 1980's
Washington Water Power Company	Thompson Falls-Wallace, Idaho (Prospect Creek)	230		1979

[1]Pending agreement with Confederated Kootenai - Salish Indian Tribe.
[2]This facility would be constructed in potential partnership with Montana-Dakota Utilities
[3]Projected construction date is 1982; construction of associated transmission facilities would begin in 1984.
[4]See Section 3.1.4 1.
[5]Joint venture of Dreyer Bros., Inc. and CF Land Company.

The volume of fuel set aside is relatively small, approximately 1.3 million gallons monthly, and provides only a temporary solution. Permanent allocation adjustments are handled through the federal Department of Energy. The state office streamlines this process by providing procedural information to all concerned parties and offering a review process to insure the completeness and accuracy of application information.

Other Services. The office serves as a point of contact and coordinates procedures and paperwork among oil companies, product dealers, and end-users to help assure that all petroleum fuel supplies are exchanged in a timely and efficient manner. Information concerning supply connections for products not covered under the regulations, such as diesel fuel, is also maintained. Areas impacted by new highway construction, closed oil outlets, energy development and other activities are eligible for certain fuel adjustments; in such cases, the office assists in maintaining a smooth flow of product. The office may temporarily assign suppliers to end-users who have been unable to make their own arrangements.

In an energy emergency the office is authorized to release the entire amount of set-aside product to serve the affected area and to trigger action at the federal level to offset further supply imbalances.

The office has been concerned in particular with Montana's crude oil supply problems. Supply during the 1979-1981 period will be uncertain and may involve a number of alternative, short-term supply solutions, including unit train shipment of crude and flow reversal of existing pipelines. The office will play an important role in the allocation of supplies and dissemination of information during this period.

D. Energy Data Collection and Research Coordination

The Energy Division is a central repository for all types of energy information of concern to the state. Data are primarily collected from published reports of state and federal agencies and energy-related trade journals and input into a computerized storage and retrieval system. Primary objectives are to: 1) make the data more easily interpreted and readily available to agencies, researchers and the public; 2) provide verification of this data among the various sources; 3) coordinate state and regional energy modeling information; and 4) provide computerized access to the data base for updating and retrieval. The division annually publishes *Montana Historical Energy Statistics*, a compilation of tables and statistics depicting the state's patterns of energy production and consumption.

Present data collection and analysis efforts are primarily concerned with energy conservation. Conservation funding requirements call for detailed state energy consumption data by sector. Energy audits are being conducted to determine the energy efficiency of state-owned buildings and private residences on a statewide basis. Similar information will be collected for solar heated buildings to compare energy consumption before and after the devices are added. Construction data and measurements for all state owned and leased buildings will be used in computer modeling studies which will measure present energy consumption and assist in implementing two conservation program measures pertaining to building codes and lighting standards (see Section 5.3.2.2.A).

The division has also contracted with the Department of Revenue for analyses of 1977 income tax reports to evaluate the renewable energy tax credit and the energy conservation tax deduction (see Section 5.10).

One of the division's chief goals is to facilitate effective use of energy research data and analyses in state government. Division staff interact on a continuing basis with research efforts of the university system, federal government, state government and the private sector. The division is currently participating in the efforts of the Energy Data Subcommittee of the Old West Regional Commission to develop a common energy data system for the five Old West states. When it becomes operational the network provide computerized access to federal, regional and state-specific energy production and consumption data. The system will provide partial support to state energy policy and planning capabilities in these areas.

E. Geothermal Planning

Montana's geothermal resources could provide energy for space heating and other purposes. However, essential information about the potential for development of specific sites is lacking. The U.S. Department of Energy (DOE) is providing funds to states and regions to begin assessing geothermal resources and to plan for future development. The Oregon Institute of Technology (OIT) received a $383,400 grant for fiscal year 1978 to start geothermal planning programs in each of the five Pacific Northwest states, including Montana. The Energy Division is providing office space, clerical support, and advisory assistance to this planning effort.

Work completed to date has focused on identification of geothermal sites with the best potential for development. Using criteria such as water temperature, proximity to population centers, existing on-site facilities, and availability of data, the fourteen sites listed in Table V-5 have been selected for study. Reports for each site include: 1) a profile of all existing data about the geothermal resource; 2) a time-line development plan which postulates a potential end use and identifies all legal and organizational steps required to develop the site for that use within a specified time frame; and 3) a quantitative estimate of the energy the site would supply if developed. The reports are oriented toward direct use of the resource such as for space heating, rather than the potential for conversion to other energy forms, such as electricity. Present use of geothermal resources is limited primarily because most site owners do not have the technical information and capital to pursue development ideas. Most of the sites are remote from population centers; however, there is some potential for agri-business applications.

Along with planning studies, DOE has also funded a resource definition program at the Montana Bureau of Mines and Geology which is aimed at improving the geological and hydrological information for various sites. Major development cannot occur until the underground characteristics of the sites are known. Information can be acquired through assorted geophysical techniques, including seismic, resistivity and geothermometer measurements made at the surface, but test drilling is often the only way to obtain accurate data. Drilling is prohibitively expensive to all but large development corporations or government-sponsored research.

DOE funds will be awarded directly to the state for the fiscal year 1979 program. A minimum of ten new sites will be studied with emphasis placed on promotion of geothermal use at all feasible sites. Information will be organized for publication and transfer to site owners and potential developers.

The Alternative Renewable Energy Sources grant program, described in Section 5.3.2.2.B., has awarded grants totaling $84,000 to individual geothermal developers. These include a demonstration home heating project at the Broadwater site near Helena (this site may have a potential for expansion to heat 150-300 homes) and a project to geothermally heat a bank at White Sulphur Springs. Additional funds have been awarded to study alternatives for geothermally heating the state institution at Warm Springs.

TABLE V-5
GEOTHERMAL STUDY SITES

Study Site	County	Existing Use
Bozeman Hot Springs	Gallatin	swimming pool and campground
New Biltmore	Madison	swimming pool and spa
Barkells	Madison	swimming pool
Boulder Hot Springs	Jefferson	swimming pool and hotel heating
Broadwater	Lewis & Clark	experimental home heating
Corwin Springs	Park	no development
Deer Lodge	Powell	no development
Ennis	Madison	laundry water
Hunters	Park	no development
Madison Formation	Portions of Eastern Montana	private ranch uses, oil well stimulation
Marysville	Lewis & Clark	one deep well for monitoring
Warm Springs	Deer Lodge	no development
West Yellowstone	Gallatin	no development
White Sulphur Springs	Meagher	swimming pool and heat for motel

Source: DNRC, Energy Division

F. Prospective Programs

Montana Renewable Energy Viability Study. The Energy Division will apply for a planning grant from DOE to conduct a feasibility and planning study on renewable energy for Montana. Most imaginable energy futures are basically variations of two themes, one of which involves rapid depletion of all types of fossil fuels and conversion and distribution of premium forms of energy, mainly electricity, through large, centralized, high technology facilities. The alternative is comprised of three components: 1) greatly increased efficiency in energy use; 2) rapid introduction of technologies based on decentralized use of renewable energies; and 3) transitional use of fossil fuels to buy the time needed to deploy these technologies.

The proposed study is essential to determine whether renewable energy should be commercialized in all energy use sectors of Montana. Presently, the division lacks the information and analyses to determine what type and scale of systems are appropriate to the various geographical regions of Montana. This study will attempt to determine if Montana possesses the resources to make a successful transition to renewable energy and review alternatives to the present mode of energy production and distribution in Montana.

Preliminary work includes literature reviews, identification of in-state expertise available to the study, and selection of methodology, management structure, and objectives. This effort will produce four working papers covering technical aspects of alternative energy systems, the economic costs and implications of those systems, the social and political considerations of adopting the systems in Montana, and the methodologies appropriate for the study.

Results of the study would be used to direct the division's Alternative Renewable Energy Sources program and to assist education and outreach activities, forecasting, and major facility siting duties. After consultation with the legislature, the study results could be incorporated in the planning process of many state agencies. The private sector could be expected to make use of a well devised plan for implementing alternative energy strategies, and the study should also prove useful to other states.

Energy Information and Forecasting. If the state is to perform its energy responsibilities independently from the utilities and energy companies, it is necessary that its energy information capability be more fully developed. Until recently, state government's involvement in energy matters was limited. Only the Public Service Commission had authority to regulate utilities, and its authority is generally limited to rate setting. With passage of the Major Facility Siting Act, state government's role expanded to include determining whether energy facilities are needed. For state government to make such determinations, a thorough understanding of the state's and region's energy needs, supplies, and facilities is required. For the most part, only the utilities have had this information and understanding, and the state has had to rely on utility data and interpretation.

In the past, utilities have projected historic energy use patterns into the future and planned the construction of new facilities to meet that projected level of demand. However, the real cost of electricity has been increasing since the early 1970's and more sophisticated forecasting methods which consider such factors as price sensitivity are needed.

Montana has lacked independent forecasting capability and therefore has had the choice of accepting applicants' historic trend forecasts, critically evaluating applicant forecasts, or making inferences from projection studies done elsewhere. In addition to siting responsibilities, regional energy planning, energy conservation, fuel allocation, and the use of renewable energy sources have become important state concerns. Montana's energy system is also physically tied to regional systems coordinated by utility dominated organizations. Consequently, Montana needs to be able to participate knowledgably in regional energy planning.

Montana's energy conservation program needs better energy consumption information by economic sector and end-use. Improved data would allow planners to identify areas where energy conservation activities would be most beneficial and to evaluate the results of individual energy conservation measures already implemented.

The 1973 oil embargo caused confusion in almost every state. Few states, if any, had short-term forecasting ability on which to base emergency contingency planning, and usable data of any kind was virtually unavailable. Since that time, many states have developed the ability to provide short-term forecasts. A comprehensive energy information system, including short term supply and demand forecasts, would similarly assist Montana's emergency fuel allocation program.

Alternative energy sources and recent technology advances hold promise for diverse and reliable energy sources in the future. Through

predictive capabilities the state could investigate the optimal use and mix of the state's energy resources.

For all of these purposes, the Energy Division should develop and operate a central, comprehensive, and unified energy data and information program. The objectives of the program should be to collect, evaluate, assemble, interpret, validate and disseminate the following types of information: energy resource reserves, production, flow and utilization; peak and average demand, generating capability and technology and net energy consequences; projected demand at varying future points through modeling and forecasting techniques; pricing trends; utilities' service areas, load projections, capabilities, and institutional arrangements; regional and interregional power transfers; and related economic and statistical information.

Siting Study. Although the Major Facility Siting Act has created a vitally important evaluation and decision-making process for siting energy facilities in Montana, the process is reactive in nature because it is limited to the processing of applications for individual facilities on a case by case basis. Unless special "pre-application" studies are arranged, the state's involvement does not begin until an application for a specific facility is filed. The Department has recognized the need for a shift in emphasis...to planning and development of a framework of policies and information to be aplied to individual facility proposals.

The siting study would develop social and environmental criteria and, using those criteria, identify areas which are not appropriate for various facilities. Applicants would then be able to eliminate those areas from further consideration and utilize the criteria in their studies of alternative sites for proposed facilities. Development of the criteria would include consideration of such factors as: prime agricultural, range, and forest lands; important wildlife areas; existing transportation and transmission routes; water availability and quality; air quality; seismic activity; specially designated areas; available labor force; availability of social services and housing; and public attitudes. The U.S. Forest Service and Bureau of Land Management have indicated an interest in participating in this type of study and providing both financial and in-kind support.

While the process would identify those areas most obviously unsuitable for energy development sites, it would not attempt to identify suitable sites. Identifying sites suitable for energy facility development would require much more detailed data than a screening process designed to eliminate areas. Developing these data would require a substantial commitment of time and money. State designation of an area as suitable for energy facility development would also more directly impact land values. Finally, actual site selection would be more appropriate for an energy developer than for the state. Identifying only areas unsuitable would leave most of Montana in an "undecided catagory" and case-by-case studies would continue to be made by the applicant and the state under the Major Facility Siting Act to determine the suitability of a specific facility proposal for a specific site.

5.3.2.2. CONSERVATION AND RENEWABLE RESOURCES BUREAU

A. Energy Conservation

Montana's energy conservation program is based on the two federal statutes described below.

Energy Policy and Conservation Act (P.L. 94-163). This 1975 legislation established a three-year grant program to assist states in carrying out conservation programs with a goal of achieving five percent energy use reduction in 1980 as compared to the projected consumption for each state. Eligibility for federal assistance required that state programs include: 1) building standards; 2) lighting efficiency standards; 3) energy efficiency standards and policies for state procurement; 4) traffic regulations permitting right turn on red; and 5) promotion of car pooling and public transportation. Optional program features may include: hours of use restriction for public buildings, non-essential lighting limits, transportation controls, public education programs and other appropriate programs.

Energy Conservation and Production Act (P.L. 95-385). This 1976 legislation primarily emphasizes energy conservation programs which include: 1) weatherization assistance to low-income persons; 2) supplemental state conservation plans; 3) a conservation demonstration program for existing dwellings; and 4) energy conservation finance guarantees. The weatherization program provides up to $400 per housing unit to states and some local and community action agencies for weatherization of low income persons' dwellings. State conservation plans are required to include energy audits to determine the energy efficiency of various buildings as well as certain other measures (see Figure V-B). Also, the Department of Housing and Urban Development is directed to test the feasibility of providing aid for

energy conservation in dwellings and demonstration of renewable resource technologies. A financing program guarantees loans up to 90 percent of cost to corporations, small businesses, non-profit institutions and others for installing energy conservation measures in buildings. The law also encourages exchange of energy conservation information among states and between states and federal agencies.

In accordance with these acts, a conservation plan was designed to achieve a five percent reduction in Montana's total projected energy consumption by 1980. Long range energy conservation strategies for the state were also addressed. DOE estimated that Montana will consume 370.5 trillion Btu's of energy in 1980. Montana's current energy savings target is 16.813 trilion Btu's, a downward revision of the original target of 18.5 trillion Btu's, primarily due to the absence of proposed program measures which the 1977 Legislature did not pass. These measures concerned public transportation and railroad assistance and a conservation loan program.

Specific conservation program measures are diagrammed in Figure V-B. Measures numbered one through five are those required by the 1975 federal conservation act; supplemental measures required by the 1976 conservation act are asterisked. The remaining items are additional programs which go beyond federal requirements and which may have even greater potential for effecting energy savings in Montana than the mandated measures. The numbers included with certain measures indicate the energy savings in 1980 (in trillion Btu's) that were estimated at the time Montana's energy conservation plan was prepared. These figures will be revised as specific results of program implementation become available. Measures with a "No Savings" notation are primarily educational or administrative. No savings are associated with the right turn on red measure because it existed in Montana before conservation requirements were set.

Federal funding for some energy conservation strategies (e.g., weatherization, renewable energy demonstrations, etc.) is channeled to more than one state or federal agency. The *State Conservation Plan* explains the specific activities associated with each conservation program measure. Section 5.6.2. discusses weatherization activities of the Department of Community Affairs which receive separate funding.

Program Activities. The Energy Division has developed an automated system to process energy consumption data from buildings owned and leased by the State of Montana. The data will be used to quantify annual energy savings for the conservation plan measure which pertains to managing, auditing and retrofitting state buildings. The energy audit program will provide valuable suggestions for both structural and operational modifications of buildings. However, immediate savings can result from implementation of suggested guidelines on the operations and maintenance of state-owned buildings. The guidelines are mandated by an executive order of the Governor and could reduce energy consumption by as much as ten percent.

In order to identify state owned buildings as either energy efficient or inefficient a metering system funded by the last legislature has been initiated. To date seventy meters have been installed throughout the state; approximately ten additional meters will be installed.

Energy use in the Capitol complex, the University of Montana and Eastern Montana College is being curtailed by the use of energy management systems. Significant savings have been noted in all of these complexes since the introduction of the systems. A plan to deploy the management systems throughout the state institutional and educational systems is presently under study.

A residential energy audit program is also being conducted. During September and October of 1978 the state's utilities enclosed energy audit brochures with customers' monthly bills. Individuals were asked to make certain measurements related to energy use and mail the results to the state. Computerized calculations were made for each set of information to determine the energy efficiency of each residence. The state sent respondents estimates of the dollar savings residents can realize if certain suggested weatherization improvements are made.

Approximately 600,000 brochures were sent out, although many individuals may have received more than one since banks and the Boy Scouts assisted the utilities in the distribution effort. By December 1978, 9500 returns were received. Information from respondents will be particularly useful in estimating total potential energy savings in Montana's residential sector.

Implementation strategies for other Conservation program measures are discussed in tne *State Conservation Plan.*

B. Alternative Renewable Energy Sources Program

The Alternative Renewable Energy Sources program provides funding derived from the coal

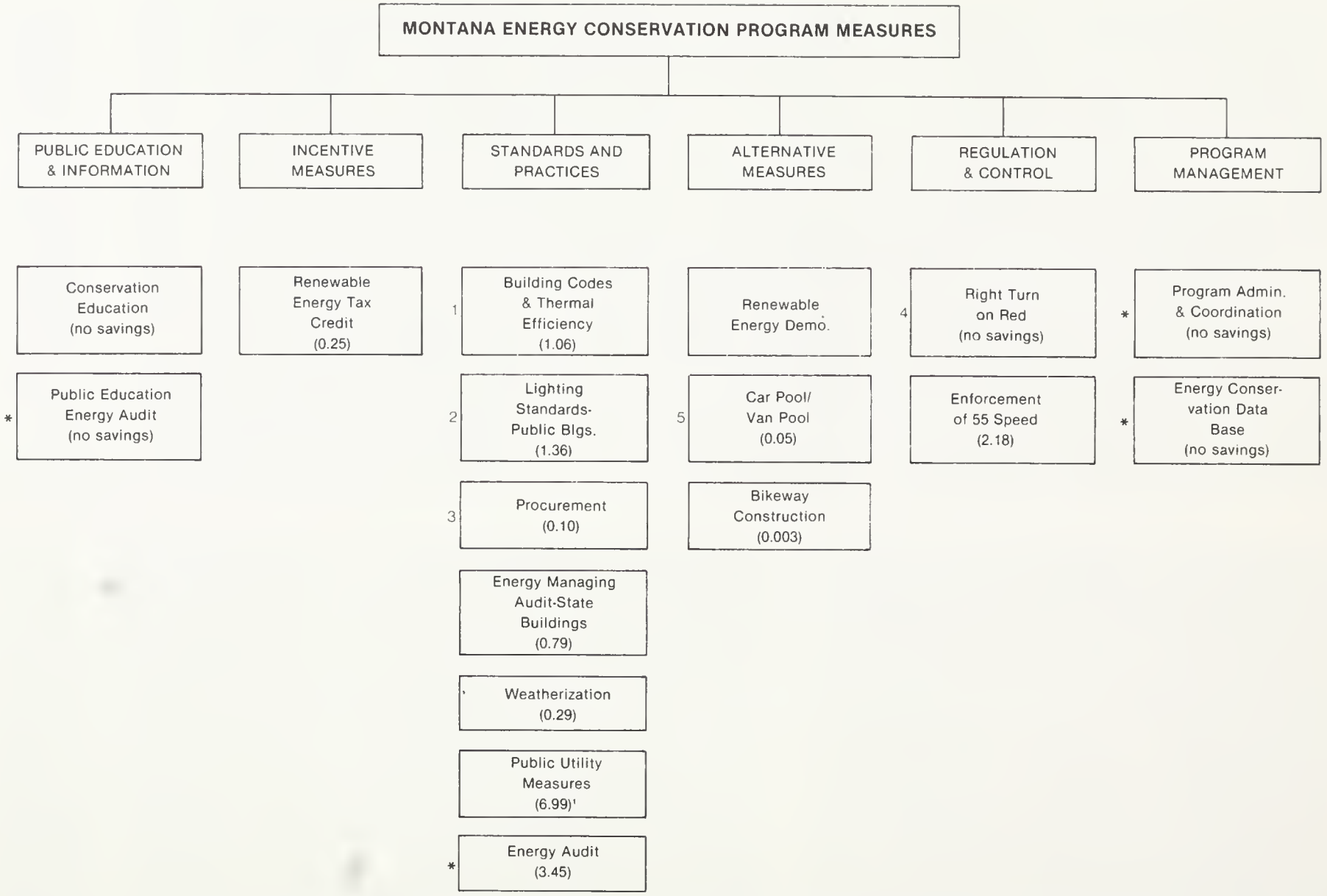
MONTANA ENERGY CONSERVATION PROGRAM MEASURES
PUBLIC EDUCATION & INFORMATION
INCENTIVE MEASURES
STANDARDS AND PRACTICES
ALTERNATIVE MEASURES
REGULATION & CONTROL
PROGRAM MANAGEMENT
Conservation Education (no savings)
* Public Education Energy Audit (no savings)
Renewable Energy Tax Credit (0.25)
1 Building Codes & Thermal Efficiency (1.06)
2 Lighting Standards-Public Blgs. (1.36)
3 Procurement (0.10)
Energy Managing Audit-State Buildings (0.79)
Weatherization (0.29)
Public Utility Measures (6.99)[1]
* Energy Audit (3.45)
Renewable Energy Demo.
5 Car Pool/ Van Pool (0.05)
Bikeway Construction (0.003)
4 Right Turn on Red (no savings)
Enforcement of 55 Speed (2.18)
* Program Admin. & Coordination (no savings)
* Energy Conservation Data Base (no savings)

FIGURE V-B MONTANA ENERGY CONSERVATION PROGRAM MEASURES

Source: The Montana Energy Conservation Plan (Montana Energy Office, 1978)
[1]The savings associated with this measure are projected results of energy audits of industrial energy consumers.

severance tax to various projects which demonstrate, develop or research some form of non-fossil energy. At present the program receives about $750,000 per fiscal year. Grant projects cover not only solar, but also wind, geothermal, biomass, wood and small scale hydro. To date, the program has distributed nearly $1.7 million to 124 renewable energy projects, with the funding per project ranging from less than $1,000 to $100,000. Since the program began, 419 requests for funds totaling $11 million have been received.

Proposals have been largely unsolicited and have come from a broad range of the Montana public, including farmers, ranchers, professors, businessmen and others. The basic requirement is that the project be conducted in Montana and than it make use of a renewable energy source. By law, grants cannot be awarded to projects which employ an energy source or technology that is in general commercial use. Projects that will use an excessive amount of energy or require large-scale capital investment are avoided. Preference is given to projects with matching support.

Proposals must contain complete and accurate technical, business and budget information which is initially subjected to staff review to determine the technical feasibility of the project and then submitted, with recommendations, to the Alternative Energy Advisory Council. The council, composed of Montana citizens, reviews each proposal primarily in terms of its potential for practical application and development in Montana and makes recommendations. The Department director considers the council's and staff's recommendations and makes final funding decisions. Contracts between the Department and grantees are normally for one year, but can be extended.

The largest number of projects funded to date have concerned solar technology. Undertakings in this area involve new homes and retrofits, air and hydraulic collectors as well as several passive designs and home-made systems, including a tracking parabolic device. Solar research includes detailed engineering studies of a cross section of systems and a monitoring effort which involves collecting solar insolation at 30 stations throughout the state. By this winter nearly two years of data will have been collected for most of the locations.

The wind resource of Montana is substantial. Several projects deal with determining its power potential; these include a renovated Jacobs wind charger that is part of an energy self-sufficient solar greenhouse and a prototype downwind system which is capable of producing up to 36 KW of electrical energy.

The biomass energy resource of Montana is also beginning to receive attention. Program funded research is helping define the biochemical and biological processes which limit the production of methane from animal waste. Another project is assessing various means and approaches for producing energy from such agricultural products as wheat, barley and straw. There is also considerable interest in developing efficient wood-burning systems. Several projects involve innovative means of combusting wood fibre.

Other projects deal with the feasibility and prospects of using geothermal heat. In addition, the program has funded projects which emphasize education and technical assistance. The New Western Energy Show, a theatrical troupe and traveling energy show (see Section 9.4.) received support. Another grantee recently developed an educational curriculum and conducted a special course which focuses upon the needs of home builders. This course will soon be taught in several communities across the state. The largest grant awarded to date served as seed money for the Center for Innovation — a regional center designed to provide assistance to inventors wishing to design, develop and put ideas to practice.

Each grant essentially accomplishes two things: the store of information about renewable energy is increased and at least one more individual has gained essential expertise in the use of renewables. The program has been in operation for two and one half years. Many of the funded projects are just completing their first season of use with the systems fully installed. As reliable performance data become available, the information will be distributed to the public. Also, future projects will be encouraged in areas which have not received attention to date.

Detailed information concerning all aspects of the grant program will be available in the program's report to the legislature. An operational plan for the program for the next two years is also in preparation.

C. Solar Planning

The Governor created the Montana Solar Planning Committee in August 1977, and in September 1977 the committee received $5,000 from the federally-funded Solar Planning Office-West in Denver to initiate a state solar planning effort. The committee was composed primarily of Montana citizens knowledgeable about solar energy. (Western regional solar planning is discussed in Section 6.3.). Upon receipt of the grant, the Montana Solar Plan-

ning Committee agreed to: 1) provide the Western regional solar planning effort with whatever information is requested of Montana, including inventories of solar experts, solar societies, solar research institutions, solar demonstration projects, solar legislation, and identification of barriers to solar development; 2) choose a representative number of solar advisory groups in Montana to review the products produced by the regional planning process to insure that recommended solar implementation strategies are reasonable and implementable; 3) provide ideas to the regional planning process; and 4) establish some type of solar infrastructure in Montana that can be linked to the Western regional solar center.

The Montana Solar Planning Committee adopted the following three goals: 1) research, write and publish a *Montana Solar Directory*; 2) organize a decentralized solar infrastructure of existing or potential solar entities in Montana to meet the requirements of the regional planning effort and stimulate the development of grass roots solar technology and more complex solar technology in appropriate sectors of Montana's labor force, business, and research institutions; and 3) establish a solar organization dedicated to stimulating a solar industry in Montana, resolving known solar barriers, and formulating solar legislation.

To accomplish its goals, the committee contracted with a principal investigator and the Montana Energy Office (now the Energy Division) and provided two solar coordinators under the Comprehensive Employment Training Act (CETA) as well as staff in-kind services.

Workshops. In November 1977, the Montana Energy Office, the Montana Solar Planning Committee and the Solar Planning Office-West sponsored a solar financial workshop in Helena. This workshop brought together fifty-seven people, including financiers, appraisers, real estate agents, state employees and representatives of citizen groups, to discuss the role of the financial community in solar energy development. The workshop identified barriers to obtaining loans from financial institutions for renewable energy installations and discussed procedures which would alleviate or eliminate those barriers. The proceedings of the workshop were published in May 1978.

The Montana Energy Office also co-sponsored a workshop on solar energy for architects and engineers at the Montana State University School of Architecture in June 1978. This workshop focused on passive solar design and was presented by personnel from Battelle Pacific Northwest Laboratories in Richland, Washington supported by funds from DOE. About fifty people attended the workshop and twenty of those individuals toured Bozeman solar homes.

Renewable Energy Inventory. Between November 1977 and January 1978 the Energy Office contracted for an inventory of Montana's renewable energy projects. The information gathered covered such items as cost, performance and design of systems as well as problems encountered during project construction and operation, tips to others contemplating renewable energy projects and attitudes of respondents toward renewable energy development in Montana. Much of this information will be reproduced in the *Montana Solar Handbook*.

Solar Handbook. The *Montana Solar Handbook*, scheduled for publication in early 1979, will contain basic information about solar energy and lists of resource people and solar energy organizations in and out of Montana. The handbook is designed for those who know little about solar energy as well as those who are relatively knowledgable. The handbook will highlight some successful solar installations around the state. Since the *Montana Solar Handbook* will provide reliable information on the feasibility of solar systems in Montana, it will have the widest possible distribution. Funds for production and printing are from the Solar Planning Office-West and a grant from the Alternative Renewable Energy Sources Program. The Energy Office received the latter funding before being incorporated into DNRC.

Sun Day. The Energy Office hired a special coordinator to prepare for Sun Day on May 3, 1978. The coordinator travelled the state to inform communities about Sun Day and to provide them with general information about solar energy. The coordinator also helped community organizations throughout the state with their preparation for a Sun Day celebration in their areas. In addition, the coordinator dispersed to communities the minimal funds which DOE provided for Sun Day activities.

Solar Survey. In January 1978 the Montana Energy Office sent a solar energy public opinion survey to all legislators and to a random sample of 2850 Montanans. The survey was designed to provide an initial assessment of statewide attitudes toward solar energy. An initial draft of the results and analysis of the questionnaire appeared in the *Montana Solar Plan*. The final draft was published under separate cover in September 1978.

Montana Solar Plan. The *Montana Solar Plan*, published in May 1978, presents a guiding philosophy as well as a set of solar programs. The philosophy emphasizes the value of decentralized, small-scale, renewable energy systems and the programs stress information dissemination and outreach as well as technical training and networking to bring all citizens into contact with the essential elements of renewable energy. The Solar Plan presented the Solar Planning Office-West with solar programs that the Montana Solar Planning Committee believed should be undertaken throughout the western region once the Western Solar Utilization Network (Western SUN) is funded and staffed (see Section 6.3).

Since completion of the plan, the Montana Solar Planning Committee has disbanded and the Solar Coodinators' duties have been completed. Apart from the specific projects completed by the Montana Energy Office and the Montana Solar Planning Committee, the Energy Division's existing staff continues to provide general as well as specific information about solar energy to citizens around the state.

5.3.3. OIL AND GAS CONSERVATION DIVISION

In administering Montana's oil and gas statutes, the Oil and Gas Conservation Division is charged with preventing wasteful or harmful practices in resource recovery. The division's responsibilities include classification and inspection of wells, issuance of drilling permits and pooling orders, and establishment of well spacing units and secondary recovery programs. Collection of all types of data pertaining to oil and gas production, drilling and exploration activities is a primary division function. The information is published in the *Annual Review of Oil and Gas*. The division also maintains a core depository, drill cutting depository, and an individual well data library.

Oil and gas production information is presented in Section 2.

5.3.4. WATER RESOURCES DIVISION

5.3.4.1. HYDROELECTRIC PROJECTS

The state owns some 35 major water conservation projects as well as a number of small projects, some of which are no longer active and most of which are physically deteriorated. In March 1978 the Board of Natural Resources and Conservation adopted a conceptual plan for administration of these projects, entitled "Conceptual Plan for Montana Water Resources Projects." The plan proposes the development of hydroelectric facilities at state-owned dams and subsequent sale of the electricity through long term contracts. The revenue thus derived will enable the state to repair and maintain existing projects and to construct new ones. The expertise gained from this process will also allow the state to provide assistance and advice to private owners of water projects who wish to undertake similar hydroelectric development plans.

Since adoption of the plan, the division has examined the potential engineering and economic feasibility of the following three projects: Broadwater-Missouri near Toston, Painted Rocks in southwest Montana, and Dead Man's Basin near Harlowton.

The division has made a field reconnaissance and prepared a scheme of development for each site along with modifications to the existing facilities, where required. A computer program, simulating the seasonal flow characteristics of the watershed and operation of the plants, assessed the potential energy that could be generated at each site. The three projects could potentially generate 105 million kWh per year with an estimated market value in excess of $2,700,000. This energy is equivalent to that produced by approximately 60,000 tons of coal in a modern coal-fired steam electric generating station.

An economic evaluation of costs and benefits indicates that the three projects as a group would result in a benefit-cost ratio of 1.62 to 1. The Federal Energy Regulatory Commission has unofficially in-

dicated that benefit-cost ratios of 0.70 to 1 are justifiable for construction in today's markets when comparing hydropower to a fossil fuel-fired plant because the latter's energy cost will inflate with time.

The division also identified potential markets for the power and means of delivering the energy to the purchaser. Small entities may be desirous of obtaining power from these installations since the Bonneville Power Administration has indicated that it will not supply additional power to cooperatives beyond the mid-1980's.

In August 1978 DNRC received a federal grant to do a more detailed feasibility study at the Broadwater-Missouri site. Completion of the study is anticipated in early 1979. Further activities will then include preparation of an environmental statement, negotiation of a contract for sale of the power, financing arrangements, and preparation of final design and construction plans.

5.3.4.2. YELLOWSTONE RIVER MORATORIUM

Large applications for water use permits in the Yellowstone River Basin were suspended in 1974 due to a moratorium enacted by the Montana legislature. Applications affected by the moratorium were primarily for industrial use associated with energy-related development. The moratorium emphasized the need for reserving water in the Yellowstone Basin for the protection of existing and future beneficial water uses with particular emphasis on agricultural and municipal needs, as well as guaranteed minimum flows for the protection of existing rights, future uses, water quality, and aquatic life.

The DNRC is responsible for processing water use applications under the 1973 Montana Water Use Act. The DNRC was legally obligated to begin processing the industrial applications in March 1977. However, the priority date of any new water right (by reservation or permit) reflects the original date of the application. Any water reservation approved by the Board of Natural Resources and Conservation will have a preference of use over any permits granted upon action on the suspended applications.

In 1977 DNRC received thirty reservation requests for waters of the Yellowstone Basin. Included were requests for future irrigation consumption from four conservation districts, two irrigation districts, and the Department of State Lands (three applications). In addition, the Federal Bureau of Land Management and Bureau of Reclamation applied for water reservations in the basin. Eight municipalities requested water for domestic or municipal consumption. DNRC filed a multipurpose request on the Tongue River Reservoir which included some consumptive uses. The levels of consumptive use requested would involve the total diversion of 391,500 acre-ft per year for municipal/domestic, 1,600,000 acre-ft per year for multipurpose (DNRC requests), and 986,900 acre-ft per year for irrigation.

The Montana Fish and Game Commission and the Department of Health and Environmental Sciences submitted two major applications for nonconsumptive water uses for the purpose of maintaining in-stream flow. Most of the conservation district applications and some municipalities also mentioned in-stream flow, although only the North Custer Conservation District requested a specific amount.

The Board of Natural Resources and Conservation held public hearings on the reservation requests in Billings and Helena in August and September of 1977. Applicants and objectors, which primarily included energy industry representatives, presented their views and after the hearings each applicant wrote a proposed Findings of Fact, Conclusions of Law and a Proposed Order for the Board's review. The Board announced its decision in December 1978, as discussed in Section 5.3.1.

5.3.4.3. RENEWABLE RESOURCES DEVELOPMENT PROGRAM

DNRC administers the renewable resources development grant program (RRD) for the purpose of applying a portion of coal severance funds to develop and preserve the state's renewable resources. DNRC has received over $5 million in grant applications for the 1979 legislative session (with only approximately $1.6-1.8 million available). High priority consideration is given to projects for which other sources of funding have been committed. Other factors used to determine priority for funding include the benefits of the proposed project, likelihood of project completion during the biennium, energy and resource conservation benefit aspects of the project, and variety of projects. Also, loan applications have preference over grant applications. One grant of $300,000 has been made to the state solid waste program (see Section 5.8.1.). A loan was also approved, but has not yet been used. Also, the 1977 Legislature funded conversion of 5,800 acres in the West Bench Irrigation District from ditch

and electrical sprinkler irrigation to a gravity sprinkler system. This not only resulted in savings in power equivalent to approximately 2 MW, but also more efficient use of irrigation water. As a source of supplemental grant funds, the RRD program can aid state water planning and multiple use of water, including future potential support for design of power facilities on state water projects where proven feasible.

5.3.4.4. NEVADA CREEK RESERVOIR

Nevada Creek Reservior, a state-owned water project located near Helmville, is administered by DNRC. In 1977 DNRC made arrangments with the Montana Institute for Appropriate Technology (MIAT) to improve existing buildings on the property and make other additions to convert the location into a renewable resource learning center. The center could serve the following purposes: 1) provide for demonstration and testing of energy efficient and renewable resource, family farm, and agricultural technologies; and 2) provide residential training for state and local government employees, citizen leaders, and private organization's employees and board members on energy management, local energy planning, low cost renewable resource technology and community development.

Using funds provided under the Comprehensive Employment Training Act (CETA) and other monies from the National Center for Appropriate Technology and DNRC, MIAT sponsored building renovation and construction of solar greenhouses, solar panels, a solar heated sauna, solar water heater, certain passive solar design features and experimental cold frames for gardening.

5.4. DEPARTMENT OF STATE LANDS

The Department of State Lands performs its duties under the direction of the Board of Land Commissioners, which is composed of the Governor, the Superintendent of Public Instruction, the State Auditor, the Secretary of State and the Attorney General. The Board exercises general authority over the administration of laws relating to state land, include the care, management and disposition of lands and administration of funds arising from the use and leasing of those lands.

Under the Board's direction, the Department of State Lands has two primary duties: the day to day management of state lands and administration of Montana's mining statutes. In accordance with such duties, the Department is organized into a Land Administration Division, a Reclamation Division and a Centralized Services Division. The Land Administration Division oversees the leasing, exchange, improvements, and overall management of state-owned lands.

In administering Montana's mining statutes, the Reclamation Division processes permit applications for new mines. Upon receipt of a complete application, the division conducts a thorough study of the applicant's mining and reclamation plan before recommending approval or denial of a permit. Since passage of the Montana Strip and Underground Mine Reclamation Act in 1973, the nine coal companies listed in Table V-6 have received permits. Performance bonds on coal mines in Montana as of September 1978 totaled $41,308,980. The total tonnage of coal mined in Montana in 1977 was 27,165,729 tons.

Currently the Department is evaluating permit applications for three additional mines: Warburton, Spring Creek Coal Company and Shell Oil Company. In addition three other companies have indicated that they will probably be submitting permit applications within the next two years. Information concerning these proposals is presented in Section 3.1.1.

TABLE V-6
MONTANA COAL MINES
Existing Mines

Operator	County	Total Acreage Permitted	Total Bond[1]
Western Energy	Rosebud	5,650.17	$15,888,967.75
Westmoreland	Big Horn	2,157.49	6,087,800.00
Decker	Big Horn	7,452.7	14,771,600.00
Peabody	Rosebud	1,234	4,043,618.00
Knife River	Richland	565	391,995.00
Divide	Musselshell	43.2	33,500.00
P. M.	Musselshell	14	11,500.00
Coal Creek	Powder River	21	42,000.00
Beartooth	Carbon	11.7	38,000.00
	TOTAL	**17,149.26**	**$41,308,980.75**

Source: Department of State Lands
[1]As of September 1978

5.4.1. FEDERAL SURFACE MINING REGULATIONS

In early 1979 DSL will submit its proposed surface mining regulatory program to the federal Office of Surface Mining (see Section 7.2.6.) to comply with requirements in the 1977 federal surface mining act which is summarized in the following subsection.

5.4.1.1. STRIP MINING CONTROL AND RECLAMATION ACT OF 1977

In passing this legislation Congress declared that coal mining operations contribute significantly to the nation's energy requirements, but that many mining operations result in disturbances of surface areas that burden and adversely affect commerce and the public welfare. Since surface mining and reclamation technology is available, effective and reasonable regulation is an appropriate and necessary means to minimize the adverse social, economic and environmental effects of mining. Because of the diversity in the coal mining areas, Congress found that primary regulatory responsibility should rest with the states.

The act establishes the Office of Surface Mining, Reclamation and Enforcement to administer the programs outlined below.

All surface coal mine operators producing 250 tons or more of coal from any one location in twelve consecutive months or more of coal are subject to the act. Mines producing less than 100,000 tons per year may be exempted from all provisions except that prohibiting placement of spoil on downslopes greater than 20 degrees until January 1, 1978. Also exempt are very small mining operations on private land for private use, operations on two acres or less area, and mining incidental to other activity such as highway construction.

The legislation provides for an initial regulatory program period beginning six months after enactment for new mining operations and nine months for existing operations. Operators are required to: 1) restore land to a condition capable of supporting the uses it was capable of supporting prior to mining; 2) restore the approximate original contour; 3) remove and preserve the topsoil for later redistribution; 4) minimize disturbance to the hydraulic balance; 5) design, maintain and remove all existing and new waste piles used as dams or embankments; 6) use explosives in accordance with state and federal regulations as stipulated; 7) establish a permanent vegetative cover on affected areas; and 8) on slopes greater than 20 degrees, prevent placement of spoil on downslopes, cover the highwall and return the site to original contour.

During the initial period federal personnel will inspect every mine site at least once every six months. The initial regulation program ends in a state when a state program gains approval by the Secretary of the Interior. Requirements for the state programs are discussed further in Section 5.4.1.2.

In addition to the initial program standards, the permanent regulatory program will require operators to: maximize utilization of the coal resource; restore the top soil; perserve the individual soil horizons from prime farm land; stabilize all areas to control erosion and pollution; construct permanent water impoundments to preserve water quality and quantity for adjacent users; treat all acid-forming or toxic materials to prevent water contamination; conduct reclamation as contemporaneously as practical with mining; assume responsibility for successful vegetation for ten years in regions with less than twenty-six inches of average annual precipitation; and stabilize all waste piles and excess spoil.

This is a representative, but only partial listing of the items and practices given specific mention. In addition, operators must post a performance bond equivalent to the cost of a third party to reclaim if the operator defaults.

States with approved programs will be responsible for enforcement although federal inspections are required to evaluate program performance. Enforcement methods include issuance of notices of violations, cessation orders in case of imminent danger to the public, significant environmental harm or failure to comply with violation notices and suspension and revocation of permits. Civil penalties cannot exceed $2500 per violation per day. Willful violations may incur fines up to $10,000 and up to one year imprisonment.

Costs of determining probable hydrologic consequences of mining and evaluation of test borings for a permit application may be assumed by the state (or federal) authority upon the request of operators who will produce less than 100,000 tons of coal annually.

A federal lands program shall apply all requirements of the act to federal lands, excepting In-

dian lands, within one year after enactment. States such as Montana, with existing agreements to regulate surface coal mining on federal lands, may continue, although the Secretary of the Interior may not delegate his duty to approve mining plans or designate those federal lands unsuitable for mining.

Any person adversely affected by a proposed permit application may file an objection and may request an informal conference in the locality of the propsed mine site. Persons suffering personal injury or property damage may sue the mine operator for damages. Objections may also be filed regarding release of a performance bond.

Federal coal under private land may not be leased until the surface owner has given consent to enter and commence surface mining operations. Also, if mining of federal coal is proposed under surface subject to federal lease, the application must include either the lessee's written consent or evidence of bond posted to assure against damages to crops or improvements of the land.

Upon finding that reclamation is not technologically and economically feasible, pursuant to the act's requirements, the regulatory authority shall designate an area as unsuitable for coal mining. Other areas may be so designated in response to a petition from a person whose interest is or may be adversely affected if subsequent analyses demonstrate that: 1) the area is incompatible with state or local land use plans; 2) significant damage to fragile or historic lands would result; 3) substantial reduction in long range productivity of renewable resource lands would result; or 4) natural hazard lands would be affected in such a manner as to endanger life or property.

Surface mining operations not already in existence on the date of enactment are prohibited in national parks, wilderness and other specially managed areas, on federal lands in national forests except under certain conditions, within one hundred feet of a public road right-of-way, within three hundred feet of any public building and within three hundred feet of any occupied dwelling unless waived by the owner.

The abandoned mine reclamation fund is created to reclaim lands and water affected by mining prior to passage of the act. The fund is financed by fees of 35 cents per ton of surface mined coal, 15 cents for underground mined coal and 10 cents for lignite. State or Indian reservation lands are eligible to receive 50 percent of the fund collected in that state. Rural lands are eligible for grants covering up to 80 percent of cost to land owners to control erosion and prevent damage from unreclaimed mined lands.

Funds are provided to the Secretary to conduct research and demonstration projects on mining and minerals resource problems through state research institutes. Further funds are provided to DOE for construction and operation of ten university coal research laboratories. DOE is also authorized to annually award up to 1000 two-year fellowships in applied science and engineering related to production, conservation and utilization of fuels and energy.

5.4.1.2. STATE COMPLIANCE WITH FEDERAL REGULATIONS

Montana's position is well advanced relative to that of many other states because the state's strip mine reclamation law and accompanying regulatory program already contain most of the essential features required by the new federal legislation. In summary, states must have: 1) a law which regulates coal mining operations in accordance with the federal act, including civil and criminal sanctions for violations and an effective permit system; 2) a regulatory authority with sufficient funding and qualified personnel to regulate coal mining; 3) a process for designating areas unsuitable for mining; 4) a process for avoiding duplication in review and issuance of permits; and 5) regulations consistent with the federal regulations.

Several minor changes in the Montana Strip and Underground Mine Reclamation Act will be needed to comply with the federal act, including more stringent civil penalties for violations, authority for designation of lands unsuitable for mining based on conflicts with state or local land use plans, and a change in the definition of an operator. In addition to statutory modifications, rules and regulations must be written and the legal framework and hearing process organized to implement citizen participation provisions in the federal act. Also the state must show that it has an adequate data base to administer the program.

Although Montana has been responsible for surface mining regulation in the state since 1967, its authority over mining activities on federal land is pursuant to a special cooperative agreement with the Department of the Interior. This agreement must be renegotiated to assure compliance with the new federal act. The federal agencies will retain certain areas of authority mandated in federal laws and will have input in approving mining plans in specified areas of concern, but the state will function as the primary governmental contact with mining operators. The division of federal agency responsibilities pertaining to strip mining is discussed in Section 7.2.7.6.

Independent of the regulatory program and independent of a mandated time schedule, DSL is also preparing a plan to reclaim abandoned mines and lands previously damaged by surface mining. The federal surface mining act establishes a fee of 35 cents per ton on surface mined coal for this purpose (10 cents for lignite) and each state is eligible to receive 50 percent of the fees collected within its boundaries. Based on the 1977 rate of coal production, Montana will be eligible to receive approximately $4½ million for this program when approved by the Secretary of the Interior.

The federal surface mining act also provides grants to assist states in administering and enforcing the federal act and developing state programs. Following program acceptance by the Department of the Interior, the grants may not exceed 80 percent of costs incurred the first year, 60 percent the second year and 50 percent each succeeding year.

5.4.2. NORTHERN POWDER RIVER BASIN REGIONAL AND SITE-SPECIFIC EIS'S

Coal mining in Montana is concentrated primarily in a 7500 square mile area in the Tongue and Powder River basins. Figure V-C depicts existing coal leases and mines in the area. The future of coal strip mining and related industrial activity in the region is the subject of an environmental impact statement being prepared by the Northern Powder River Basin Task Force. The study is a joint federal-State of Montana project. The Geological Survey of the U.S. Department of Interior is leading the federal side of the project, with assistance from the Bureau of Land Management, the Forest Service, Bonneville Power Administration, and the Fish and Wildlife Service. State participation consists of a study team assigned to DSL.

The regional EIS will focus on the cumulative impacts from all proposed mines in the study area as well as other known mining and coal conversion plans which may not be formally proposed before the study is completed. This document is being prepared as a result of one of the first major Supreme Court interpretations of the National Environmental Policy Act. The court's decision in the case of Kleppe v. Sierra Club required the federal government to prepare a regional impact statement when coal-related developments are proposed for the same river basin or geographic area. The Northern Powder River statement is one of ten regional coal studies.

In addition to the regional document, the team is preparing three EIS's for DSL on individual mine plan proposals. The proposals are for two new strip mines in the Decker area (Pacific Power and Light's Spring Creek Mine and Shell Oil's Pearl Mine) and an expansion of Peabody Coal Company's Big Sky Mine south of Colstrip. (These proposed mines are described more fully in Section 3.1.1.). Together the mines would produce 16 million tons of coal per year by 1982 if the applications are approved.

The Old West Regional Commission is funding the State's participation in the regional EIS. DSL is funding the site-specific EIS's, using fees collected from the applicant companies under the Montana Environmental Policy Act. Federal task force members are on assignment from their various agencies.

The regional and site-specific EIS's will address a number of issues which are important to the future of the Powder River region. Among the key issues are: 1) Reclamation. Will the proposed mine areas be restored to their previous agricultural productivity?; 2) Air Quality. To what degree will coal mining and electric generating plants affect the generally clean air of the region?; 3) Water Use. Will increasing population and industry place excessive demands on water supplies? How will mining affect water quality?; 4) Economics. What changes in local and state economics can be expected as a result of the proposed mines? Who will benefit, and who will incur costs.

5.4.3. COAL LEASING

DSL is awaiting the results of the federal coal lease planning effort (see Section 7.2.2.2.) prior to recommending further issuance of state coal leases to the Board of Land Commissioners. There are 96 existing state coal leases involving 51,948 acres; however, only two leases totaling 720 acres are producing. Both are part of the Decker mine.

Montana is presently coordinating with BLM to ascertain the value of coal reserves underlying Montana state lands. Approximately two hundred potential state lease tracts were identified through surface evaluations in 1975-76. USGS has contracted with the BLM and the State Geologist's office for drilling and mineral evaluations of these tracts for which the state owns the mineral rights.

5.4.4. OIL AND GAS LEASING

Lease sales are held quarterly by the Board of Land Commissioners and are based on competitive oral bids. Preliminary environmental reviews are prepared for all lease tracts to identify adverse impacts that may occur and to determine stipulations that must accompany the leases. There are 6,080 state oil and gas leases at present which involve 2,630,788 acres. Of the total, 270 leases on 103,576 acres are producing.

5.4.5. GEOTHERMAL LEASING

The Board of Land Commissioners has authority to lease state lands containing geothermal resources; however, no leases have been issued to date. The state's efforts to encourage goethermal development are discussed in Section 5.3.2.1.E.

5.4.6. URANIUM PROSPECTING ACTIVITIES IN MONTANA

In order to prospect for uranium in Montana, a company must hold a valid prospecting permit as required under the Strip and Underground Mine Reclamation Act. Companies also must have an adequate bond to cover all disturbance caused by these exploration activities.

Currently, there are twelve companies conducting uranium prospecting activities in eleven of Montana's counties. These counties range from Mineral in the west to Carter in the east. The acreage involved consists of 172.7 acres (1,727 drill sites at 1/10 acre disturbance per site).

Since June of 1977, seventeen new uranium prospecting permits have been issued. Seven permits were issued the previous year. Permits are issued to each company for each county in which prospecting activity is taking place.

The largest degree of exploration activity is taking place in Carter County with five different companies conducting uranium operations there. Carter County contains 1,113 permitted drill sites involving 111.3 acres.

Kerr-McGee Corporation, with 878 drill sites in Carter County, has the largest uranium exploration operation in Montana.

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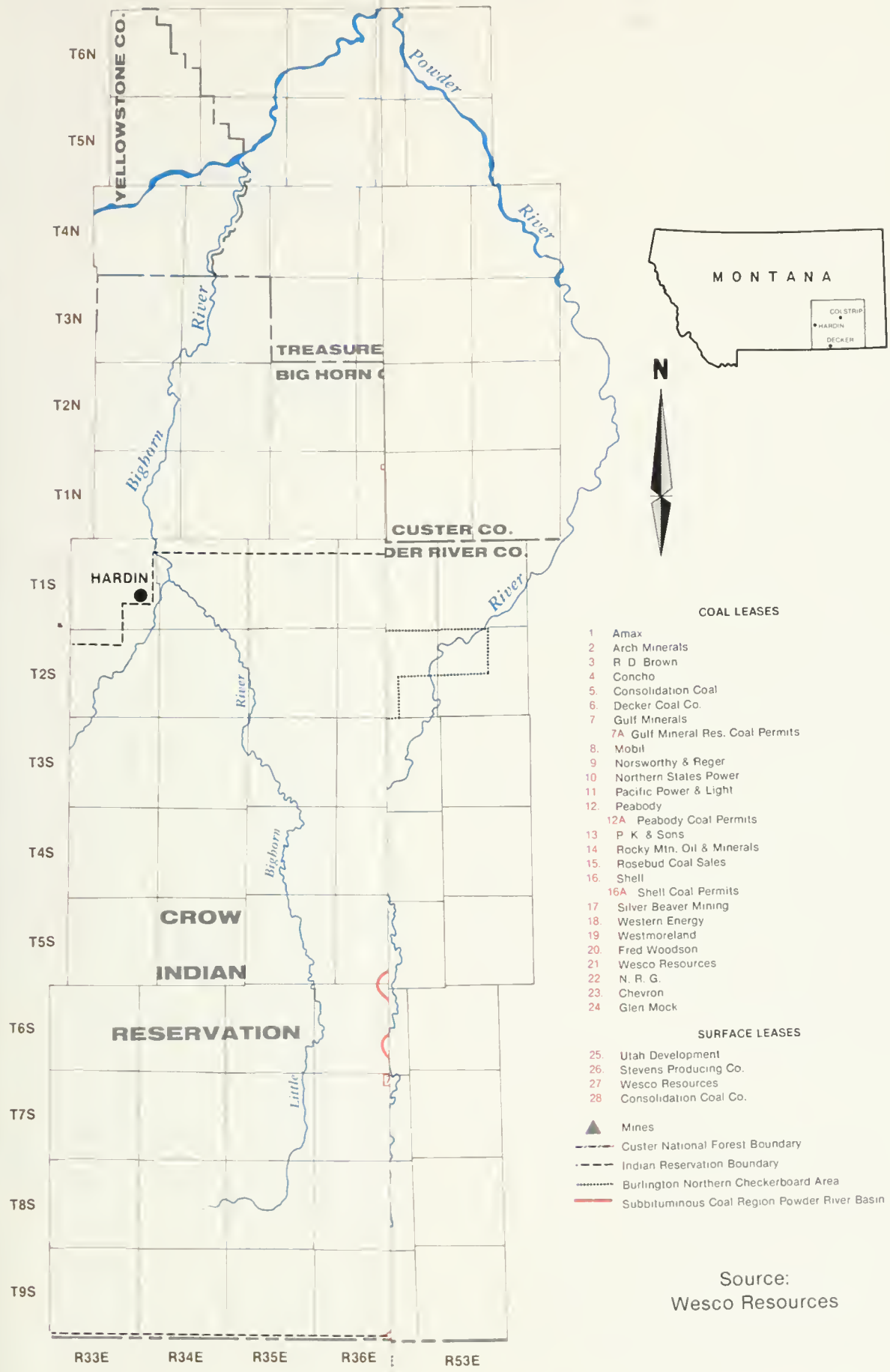


COAL LEASES

1. Amax
2. Arch Minerals
3. R D Brown
4. Concho
5. Consolidation Coal
6. Decker Coal Co.
7. Gulf Minerals
   - 7A Gulf Mineral Res. Coal Permits
8. Mobil
9. Norsworthy & Reger
10. Northern States Power
11. Pacific Power & Light
12. Peabody
    - 12A Peabody Coal Permits
13. P K & Sons
14. Rocky Mtn. Oil & Minerals
15. Rosebud Coal Sales
16. Shell
    - 16A Shell Coal Permits
17. Silver Beaver Mining
18. Western Energy
19. Westmoreland
20. Fred Woodson
21. Wesco Resources
22. N. R. G.
23. Chevron
24. Glen Mock

SURFACE LEASES

25. Utah Development
26. Stevens Producing Co.
27. Wesco Resources
28. Consolidation Coal Co.

▲ Mines

Custer National Forest Boundary

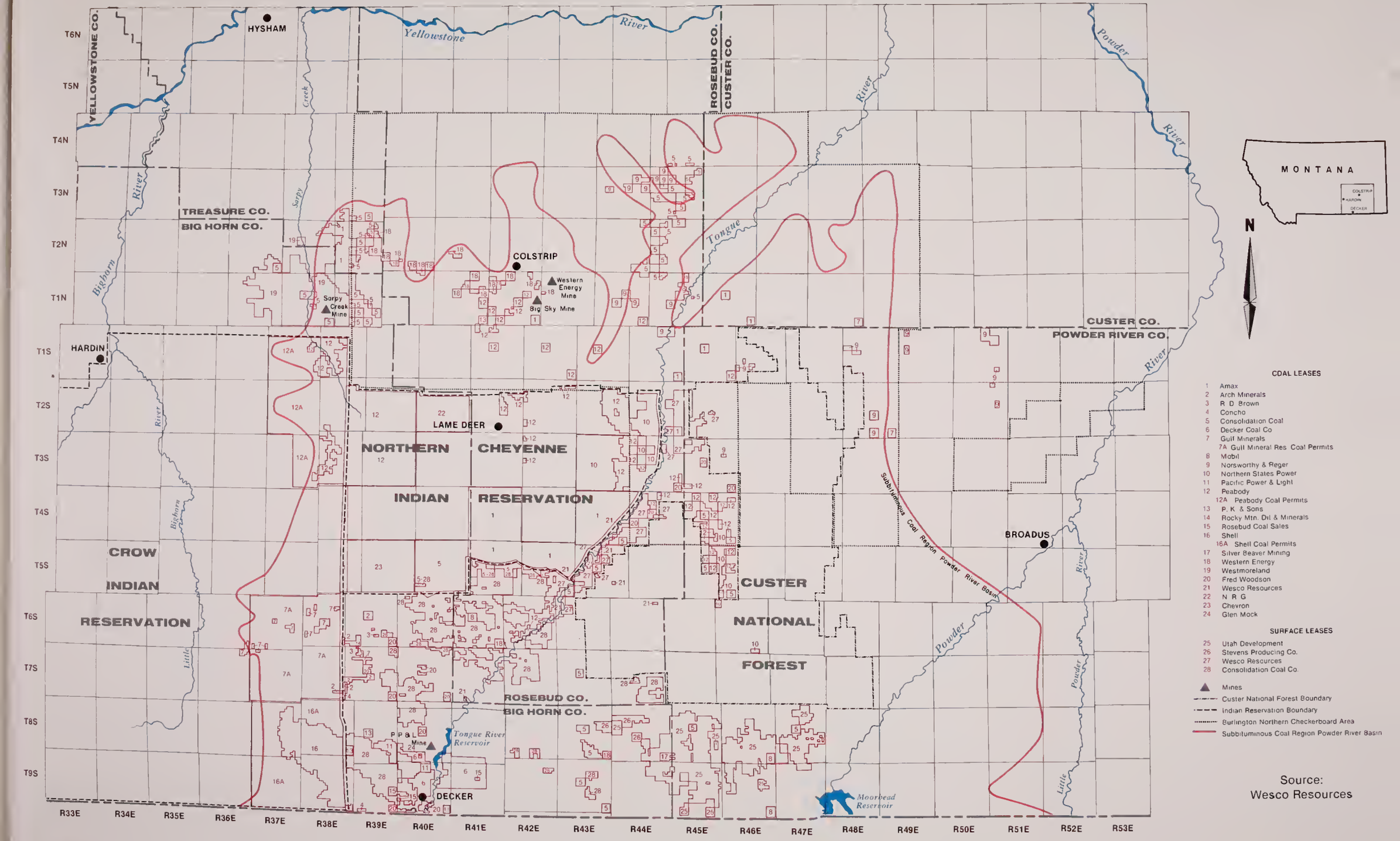
Indian Reservation Boundary

Burlington Northern Checkerboard Area

Subbituminous Coal Region Powder River Basin

Source:
Wesco Resources

FIGURE V-C POWDER RIVER BASIN COAL LEASE INDEX



COAL LEASES

1 Amax
2 Arch Minerals
3 R D Brown
4 Concho
5 Consolidation Coal
6 Decker Coal Co
7 Gulf Minerals
7A Gulf Mineral Res Coal Permits
8 Mobil
9 Norsworthy & Reger
10 Northern States Power
11 Pacific Power & Light
12 Peabody
12A Peabody Coal Permits
13 P. K & Sons
14 Rocky Mtn. Oil & Minerals
15 Rosebud Coal Sales
16 Shell
16A Shell Coal Permits
17 Silver Beaver Mining
18 Western Energy
19 Westmoreland
20 Fred Woodson
21 Wesco Resources
22 N R G
23 Chevron
24 Glen Mock

SURFACE LEASES

25 Utah Development
26 Stevens Producing Co.
27 Wesco Resources
28 Consolidation Coal Co.

▲ Mines
Custer National Forest Boundary
Indian Reservation Boundary
Burlington Northern Checkerboard Area
Subbituminous Coal Region Powder River Basin

Source:
Wesco Resources

5.5. PUBLIC SERVICE COMMISSION

The Utility Division of the Public Service Commission (PSC) is responsible for regulation of the public utility industry to provide safe, reliable and adequate services at the lowest achievable cost to consumers while concurrently providing the utilities with a fair and reasonable return on their investment for the services rendered. Utility rate structures can be considered a vital aspect of the planning and reorientation which is occurring as conventional sources of energy supply become scarce and expensive on a global scale. Rates may be structured to encourage energy conservation, encourage transition to "non-conventional", alternative energy forms, and provide appropriate price signals which reflect the costs of energy production and distribution among all classes of consumers.

5.5.1. RATE STRUCTURE

In an April 1978 order concerning the Montana Power Company's primary 1977 rate increase, the PSC required the utility to acquire those revenues attributable to investment in baseload energy plant (i.e., thermal generation in the MPC system) by applying a uniform price per unit of electrical energy (or volumetric increase) to all customers of all classes. The commission mandated a similar structure for natural gas revenues attributable to increased costs of gas supply. The order "flattens" the traditional declining block rate structure which has allowed decreasing prices per unit of energy as greater volumes are consumed. The PSC found "no apparent economic cost basis on the record to justify declining block rate prices, when adequate energy supply is provided only at a substantially increased cost." With regard to electrical energy, the evidence demonstrated that "the predominant cause of increased average energy costs is and will be the construction of baseload energy plant," which has been constructed to deal with progressive energy deficiencies, not peak deficiencies. The utility did not satisfactorily demonstrate that energy costs decrease as a function of increased consumption. Several of MPC's industrial customers are appealing this case.

The commission concluded that "the findings and results concerning the operating characteristics and utilization of resources on the MPC power system, the energy deficiency conclusions of Applicant, and the massive investment program planned to solve this progressive energy shortage mandate a comprehensive review of the entire rate design issue." Key topics which the Commission identified for consideration include: 1) study of the marginal cost of service and intra-class consumer rates; 2) evaluation of the net price of energy to the various customer classes after taxes; 3) study of the appropriateness of the demand responsibility concept and allocation factor under conditions of market curtailment; 4) examination of the "lifeline" concept (i.e., the idea that enough energy to insure survival should be available to all citizens) as it relates to the rate structure; and others.

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5.5.2. STAND-BY CHARGE

As part of a recently proposed rate increase, the Montana Power Company included a surcharge or stand-by charge to be imposed on all customers who "predominantly rely" on an alternative energy system. The company contended that alternative energy users place special demands on the system because the utility must maintain excess generation capacity which would be idle most of the time. The company suggested a minimum surcharge of $39.00 per kilowatt of installed capacity per year to provide back-up energy and stand-by service for these users. Pre-hearing discussions with the PSC indicated that studies and data necessary to support the proposal were either lacking or inadequate and that the number of alternative energy systems is presently so small that impact on the utility cannot be assessed. MPC withdrew its proposal on the condition that the PSC would schedule a special hearing to address the issue at a later date. The PSC subsequently issued a rule stating that no stand-by charge will be approved without extensive supporting information from the utility. The hearing was held in November 1978.

The surcharge could discourage development of alternative energy systems, but MPC's proposal further highlights the need for serious study of innovative rate designs, time-of-use load analyses to indicate when back-up energy systems are used, consideration of the possibility of utilities purchasing "excess" generation from alternative energy systems, and strategies to eliminate negative impacts of such systems on utilities.

5.5.3. LOAN PROGRAM

Pacific Power and Light Company submitted a proposal to the commission in August, 1978, to set up an interest free loan program for homeowners in its Montana service area to encourage installation of energy conservation and weatherization devices in dwellings. The cost of the loans would be allowed in the utility's rate base and repayment would not be required until recipients sell their homes or transfer ownership. (Since this loan program would involve the rate base, it is quite different from the program established by Section 84-7405, R.C.M. 1947, which allows a utility to make weatherization loans at seven percent interest and deduct the difference from prevailing interest rates from utility license taxes.) The company contends that the program would benefit all customers, even those who have previously paid for their own weatherization, because the subsequent energy savings will delay both the need for new plant and the rate of future increases in price. Hearings on this proposal were held in September, 1978.

In December, 1978, the Montana Power Company issued its proposal for loans to homeowners for conservation and alternative energy measures.

5.6. DEPARTMENT OF COMMUNITY AFFAIRS

Energy-related functions of the Department of Community Affairs are administered by several agencies or divisions within the department, including the Coal Board, the Human Resources Division and the Planning Division.

5.6.1. COAL BOARD

The seven member Coal Board administers the sections of Montana's coal development impact legislation (Section 50-1801 et seq. R.C.M. 1947) which establish the coal impact grant program for local governmental units in coal impact areas. The program is funded by 26.5 percent of the funds derived from the coal severance tax until July 1, 1979 and 37.5 percent thereafter. From its inception in July 1975 through October 1, 1978, the Coal Board awarded $17,033,655 and tabled or denied applications for $12,015,419. About 90 pecent of the awards address needs for public facilities or capital equipment such as water and sewer systems and treatment plants, schools, fire trucks, and solid waste disposal equipment. Awards have also responded to requests for public health nurses, judicial district staff and additional library services.

The Board's review process for grant applications includes staff review, evaluations of local tax effort, review by other affected agencies and discussions with local proponents of each proposed project. The Board's enabling legislation mandates that "grants shall be awarded on the basis of: 1) need; 2) degree of severity of impact from coal development; 3) availability of funds; and 4) degree of local effort in meeting these needs." As required, the Board has formulated guidelines to evaluate the degree of local effort, including bond issues and millage levies, except when planning grants are being considered. After awarding a grant the Board contracts with the local governing body. All existing contracts are for two years or less, although up to ten years of reasonably anticipated severance tax revenues may be legally committed. However, the Board is generally exercising care by not awarding grants in excess of the anticipated revenues of the fiscal year. This is due to the variability of actual revenues derived from the severance tax and the fact that communities impacted by existing development have received assistance in most cases, and that potentially greater needs may arise as new energy developments occur. At least 50 percent of the available grant funds must be awarded to local entities that have or could experience a 10 percent population growth during any three year period since 1972. At present the Department of State Lands must certify that applicants will be affected by significant coal development.

Issues. The dual purpose of the local impact assistance program is to enable local governments to provide the additional services and facilities required because of coal development and to spare local governments inequitable financial burdens that may result from coal development. Assistance is most needed for planning for anticipated impact, for front-end costs, and in jurisdictions which face continuing public finance inequities (that is, where the jurisdiction which incurs public costs of impact is not the jurisdiction which benefits from the increase in taxable valuation). The impact program has become the focus of differences of opinion about the degree of assistance that is equitable, what constitutes appropriate levels and kinds of local effort,

and whether direct impact includes secondary impacts. In the commercial centers that serve the coal area there is the additional difficulty of identifying and comparing beneficial and negative effects on public finance.

In communications to the Coal Tax Oversight Committee the Coal Board has noted two specific legislative changes which might improve its ability to administer an equitable program: 1) allow the Board to make loans in addition to grants if there is likelihood of new coal development in new areas; and 2) relieve the Department of State Lands of its current role of certifying impacted areas and develop its informational role to keep the Board informed about the location and possible timing of anticipated coal development. The 1977 legislative appropriations bill requires the Department of State Lands to certify that areas requesting grants will, in fact, be significantly affected by coal development. Certification is based on the location of approved mining permits and on the presumed certainty of coal development impacts. However, areas of potential development or wider reaching impacts may be excluded. DSL is hesitant to certify areas based on "potential" coal development because certification may imply that future mine permits are assured in those areas. The Board, on the other hand, is required to emphasize comprehensive planning in advance of adverse impacts.

At the request of the Coal Tax Oversight Committee, the Coal Board asked DCA and the Department of State Lands to develop objective criteria for identifying impact. However, the study was subsequently cancelled to avoid any possibility of duplicating or complicating the efforts of the Attorney General's office in dealing with the coal severance tax suit (see Section 10.2).

5.6.2. HOME WEATHERIZATION PROGRAM

This program is administered by the Human Resources Division and local Human Resources Development Councils (HRDC's) for the purpose of reducing fuel costs for those with low income housing by helping to conserve energy. Fuel savings estimated at up to 50 percent of households' fuel costs can be realized through improvements to caulking around windows and doors, installation of storm windows and doors, insulating walls and attics, weatherstripping and repairing broken windows. In 1977, 1,759 homes of low income, handicapped and/or elderly persons were winterized. The attendent energy savings will continue to be realized for as long as the homes remain and will increase in value as energy prices rise over time.

Program eligibility is determined by income status and guidlines established by the federal Office of Management and Budget. Owner occupied dwellings have preference but rentals and mobile homes in need of energy saving measures may qualify. Applications for assistance must be submitted to local HRDC offices. An advisory committee composed of low income persons and people knowledgeable about home heating and construction establishes program policies and procedures.

Funding is derived from both federal and state sources, including the Community Services Administration, DOE, the Special Crisis Intervention Program, and the Emergency Energy Assistance Program. The 1977 Montana Legislature appropriated $300,000 for energy conservation through weatherization for the 1977-79 period. The HRDC's received an additional $60,000 from Montana's Alternative Renewable Energy Sources Program for solar energy installation and development of energy efficient buildings for communities throughout the state. The total state and federal appropriation for weatherization programs in Montana was $1.6 million during the 1977-78 period; $1.3 to $2 million may be provided for similar measures in the next funding period.

5.6.3. OTHER ACTIVITIES

In its role as the state's community development agency DCA has made special efforts to assist communities which are or may be impacted by energy development. The planning division distributes planning funds derived from the severance tax to all counties in the state and works with local governments and citizens in potentially or actually impacted communities. These efforts are directed toward all types of impact problems and may, in some cases, include communities also eligible for coal development assistance. Through its newsletter or individual correspondence DCA continues to inform local planning boards, local officials and others of energy related activities which might impact their communities. The DCA staff has worked with the Federal Regional Council Energy Impact Office, helping to compile a list of current and potential impact communities, based on proximity to known energy resource deposits, to arrange for block census data to be provided to many of those communities, and to compile community profiles for a much used DOE regional profile publication.

5.7. DEPARTMENT OF HIGHWAYS

Coal Severance Funds. The Department of Highways will receive ten percent of Montana's coal tax revenue through fiscal year 1979 for highway improvement in coal impact areas of the state. The amount totals over $2 million per year. Based upon an existing highway needs study, the Department developed a program of highway improvements (listed in Table V-7) that is estimated at $63.5 million (in 1976 dollars) for Federal-aid Systems construction and reconstruction within the Colstrip Economic Development Growth Center Area. Since approximately $1.6 million is available annually to the area through regular federal-aid programs, the needs far exceed regular funding capabilities. The analysis indicated that $47 million of extraordinary federal funding, that could be matched with $16.5 million of the coal tax funds, would be needed to satisfy the Federal-aid System Improvement program. Because no federal legislation has been enacted to provide additional federal funds, the Department has not used any of the coal severance tax money.

Comprehensive Highway Needs Study-Colstrip Area. The Federal-aid System assessment did not take full account of all potential developments in the coal areas. Also, the Federal-aid System amounts to a very small percentage of the area's roadways. Therefore, in fiscal year 1979 the Department will conduct a comprehensive study that will address the potential needs of all system roads. The study will include all roads functionally classified as an arterial or collector and will also include selected roads depending on projected land use development.

Currently underway are the data collection phases that include the traffic volume counts and the sufficiency rating of most roads in the area. The analysis phase will determine the capabilities of any particular roadway segment to handle current and projected traffic loads. Indian tribes, local planning boards, county commissioners and various state and federal agencies with interest in the highway system or general development of the area have been asked to cooperate in forming a steering or advisory committee to guide the study effort.

FHWA Coal Haul Roads Study. The Federal Highway Administration has requested the State of Montana's participation in a multi-state Coal Haul Roads Study. Although it is anticipated that most coal mined in Montana will be hauled by rail, the Department of Highways has indicated an interest in participating and is awaiting receipt of the instruction manuals that will outline the work to be accomplished.

TABLE V-7
COLSTRIP AREA HIGHWAY IMPROVEMENT PROGRAM

DESIGNATION	FA ROUTE[1]	LENGTH	ESTIMATED COST TO CONSTRUCT/RECONSTRUCT
1. Sarpy Creek Road	FAS 384	27 mi.	$ 5.4 million
2. Hardin - Sarpy Creek	FAS 384	12 mi.	2.4 million
3. Hardin - East	FAS 384	20 mi.	1.8 million
4. Colstrip - Forsyth	FAP 39	30 mi.	11.4 million
5. Lame Deer - Colstrip	FAP 39	22 mi.	2.9 million
6. Rosebud - South	FAP 48	36 mi.	4.1 million
7. Ashland - Northwest	FAS 447	20 mi.	2.7 million
8. Decker - Busby	FAS 314	40 mi.	8.0 million
9. Birney - Southwest	FAS 566	23 mi.	4.8 million
10. Birney - Ashland	FAS 566	23 mi.	4.7 million
11. Crow Agency - Busby	FAP 37	27 mi.	8.8 million
12. Lame Deer - Ashland	FAP 37	20 mi.	6.5 million
		301 mi.	**$63.5 million**
Rosebud County		168 mi.	
Big Horn County		106 mi.	
Treasure County		27 mi.	
		301 mi.	

Source: Department of Highways
[1]FAP - Federal Aid Primary Route
FAS - Federal Aid Secondary Route

5.8. DEPARTMENT OF HEALTH AND ENVIRONMENTAL SCIENCES

5.8.1. SOLID WASTE MANAGEMENT BUREAU

As mandated in the 1977 Solid Waste Management Act, the Solid Waste Management Bureau sponsored a two-year, statewide study to develop a state solid waste plan. A key provision of the act is that the state shall promote development of waste recycling and resource recovery systems for energy production where economically feasible. Utilizing criteria such as proximity to major population centers and availability of energy markets, the study identified three areas (Billings, Great Falls and Missoula) with the greatest potential for developing recovery facilities. Future operations in the three areas could process up to 238,000 tons of refuse annually. The use of the organic refuse as fuel would be equivalent to 2.4 billion ft^3 of gas, 150,000 tons of coal or 18,000,000 gallons of fuel oil. Great Falls is presently the only area of the three that is actively engaged in solid waste planning.

Energy conservation is also a major focus of the solid waste program. The recovery of materials through various recycling operations represents substantial energy savings in manufacturing processes. Also area wide land fills, an important aspect of local solid waste management plans, result in significant fuel savings through maximum use of equipment in an area.

The bureau administers a $300,000 grant from the renewable resource development program (see Section 5.3.4.3.) for the solid waste management grant program which provides funds to local govenments for planning and determining the feasibility of developing local solid waste management systems. At present, 85 communities and 15 counties are involved in such planning studies. The sum of $2.5 million has also been authorized from the renewable resources development account for solid waste management loans, although the funds have not yet been transferred to DHES. No eligible local government bodies have reached a point in the planning process to require loans, which are needed for the detailed engineering studies and other activities required to actually install solid waste systems. Loans may not be used for capital investment or purchase of equipment, and recipients must have been rejected by a private lending institution in order to be eligible for the funds. Both the grant and loan monies are derived from the coal severance tax.

5.8.2. WATER QUALITY BUREAU

5.8.2.1. WATER POLLUTION CONTROL

The Water Quality Bureau administers the Montana Water Pollution Control Act and the Montana Pollutant Discharge Elimination Permit program. All waterways in the state are classified according to Water Quality Standards adopted in 1973. The permit system applies to point sources of pollution discharging to surface water, which may include coal mines and energy facilities. In order to obtain a discharge permit, an applicant must have an acceptable waste water treatment plan which will meet the standards for the particular location and waterway that would be affected.

5.8.2.2. URANIUM MINING

The bureau administers state regulations pertaining to solution extraction of uranium. This includes permitting authority over operations proposing to discharge chemicals to groundwater for in-situ uranium mining. The new rules require filing of a permit application no less than 180 days prior to commencement of any proposed uranium solution extraction mining operation. Information on the site, environment and proposed mining, monitoring and restoration plans must be submitted as part of the application. Conditions of permits include, but are not limited to, certain standards for well construction, monitoring, reporting, control procedures and aquifer restoration. To date, the Department has not received an application for this type of mining.

5.8.3. OCCUPATIONAL HEALTH BUREAU

The Occupational Health Bureau is the state radiation control agency. The bureau would regulate aspects of uranium mining which involve transport, handling and storage of radioactive materials. In addition, uranium mining operations must obtain a license from the federal Nuclear Regulatory Commission to insure proper handling of radioactive substances.

5.8.4. AIR QUALITY BUREAU

The Air Quality Bureau is responsible for administration of the Montana Clean Air Act and implementation of clean air programs and plans mandated by the federal Clean Air Act. The federal act was amended in August 1977 in a number of significant ways, including selection of a new target date, 1982 (formerly 1975), for bringing all areas of the nation into compliance with the federal standards for all regulated airborne pollutants. Regulated pollutants include carbon monoxide, particulates, oxidants, and sulfur dioxide. The 1970 federal Clean Air Act required all states to prepare plans for attaining and maintaining federal air quality standards, known as State Implementation Plans (SIP's). All areas out of compliance with the federal standards are non-attainment areas and the 1977 amendments require each state to submit SIP revisions to EPA by January 1, 1979 which outline a proposed strategy for bringing the areas into compliance. Colstrip, for example, is a non-attainment area for particulates. Other non-attainment areas in the state pertain to carbon monoxide, sulfur dioxide and particulates and, for one or more of these pollutants, include most of the state's major cities (i.e., Billings, Missoula, Great Falls, Butte, East Helena, Columbia Falls, Anaconda and Laurel). The entire state is presently unclassified for oxidant pollutants due to lack of data. If a state fails to submit a plan or if EPA disapproves the plan, no new air quality permits may be issued for major point sources of pollution in a non-attainment area. This covers facility applications received after certain target dates in 1979 and thereafter. Also, if a plan is not submitted, or if reasonable progress is not made in implementing the plan, or if the 1982 deadline is not met, various types of federal sanctions will be applied. These may include withholding or redirecting federal grant monies in air pollution related categories (e.g., funds for highways and sewage treatment). The Air Quality Bureau expects to submit Montana's revised plan on schedule.

Prevention of Significant Deterioration (PSD) standards apply to all areas that are in compliance with federal standards for particulate matter and sulfur dioxide. PSD establishes three air quality classes. Class I is the highest quality and allows only a small incremental increase in pollution in an area beyond existing conditions at the time of designation. The bulk of the United States was designated Class II, which allows for well planned growth and some additional pollution, although within limits that are well below the standards. Class III applies to areas of industrial growth and permits incremental increases in pollution up to, but not exceeding, the standards. Since 1974, Congress, the States and Indian Tribes have been eligible to petition EPA to classify areas Class I or Class III, providing that various specified procedures are followed. Wildernesses and certain other specially manag-

ed areas in existence prior to August 1977 received automatic Class I designations and the Northern Cheyenne Tribe requested and received Class I status for its reservation in mid-1977 (see Section 9.8).

Of interest to Montana is a provision of the federal Clean Air Act which states that pollutants originating in Canada are to be included in calculating the existing air quality of neighboring regions of the United States for purposes of enforcing the PSD standards, unless the Governor of a state takes action to exclude such pollutants.

After March 1979, the states will be responsible for administering the PSD regulations and for processing redesignation petitions. The Air Quality Bureau is presently evaluating procedural alternatives for PSD administration.

5.9. DEPARTMENT OF FISH AND GAME

The Department of Fish and Game is responsible for management of Montana's wildlife, state recreation lands and other types of state parks. Department policy is set by the Montana Fish and Game Commission which consists of five gubernatorial appointees from five districts established by law.

The Department of Fish and Game controls a variety of land in Montana, including game management areas, fishing access areas, state parks, monuments and recreation areas and specialized facilities such as fish hatcheries and bird farms. Fish and Game authority over these lands exists under a number of arrangements, including patent, deed, lease, easement, agreement or withdrawal. Total acreage administered as of July 1978 was 320,922.49 acres plus 66 lots.

In August 1978 the Fish and Game Commission adopted an oil and gas leasing policy for department-controlled lands which differs from that employed by the Department of State Lands for other state lands. In the latter case, DSL conducts a preliminary environmental review (PER) before selling oil and gas leases on any state land. DSL notifies Fish and Game of all acreage being considered for lease. Fish and Game makes an inspection of each site and may recommend that certain stipulations be attached to leases to protect wildlife or other natural and cultural lands values. DSL may accept or reject Fish and Game recommendations. The PER process presently encompasses approximately four weeks from tract identification to completed PER report.

The volume of leases and amount of acreage involved has been increasing and Fish and Game has taken the position that the PER study period is inadequate to insure that lands are properly inspected and protected.

The new Fish and Game policy establishes a two-step process and applies only to lands for which Fish and Game owns both surface and mineral rights. Where the mineral rights are owned by another party, the review process must be negotiated. Applications for a seismic exploration permit for activities that cause no surface disturbance other than that necessary for seismic tests require a PER.

However, applications for leases for purposes of exploratory well drilling or development must be accompanied by a complete environmental impact statement prepared by Fish and Game. Applicants are responsible for the cost of EIS preparation and the statement must include all necessary stipulations to ensure that oil and gas drilling and extraction will not adversely affect the purposes for which Fish and Game properties were acquired. To date, three applications have been processed and approved.

5.10 DEPARTMENT OF REVENUE

The Department of Revenue is responsible for administering all of the state's tax programs. Energy-related taxes, funds and programs are as follows: coal severance tax, electrical energy producers license tax, gasoline distributors license tax, special fuel tax, oil and gas producers severance tax, natural gas and petroleum net proceeds tax, gasoline importers tax, coal net proceeds tax, resource indemnity trust fund, energy conservation and alternative energy related investment incentive program, the energy system tax incentive program for individuals, and portions of the property tax which encourage new industry. The structure and essential features of each tax or program are summarized in Section 4.1.5.

The Department of Revenue is primarily concerned with the collection and accounting processes associated with each tax. However, the energy conservation and alternative energy system incentive programs have required development of rules and regulations to define the types of energy systems, materials and equipment which qualify for tax deductions or credits. For example, in new construction, deductions are only allowed for expenses incurred in excess of what is required to meet established building standards. Tax credits are not allowed for investments in any production process or in rendering a service to customers.

The two programs have been in effect for one tax year. The Governor publicized the programs during February 1978, since citizens must take the initiative to acquire and file the appropriate forms. The Energy Division has entered into an interagency agreement with the Department of Revenue to acquire statistical information concerning the number and types of alternative energy systems and conservation measures that have been adopted and claimed. Preliminary totals indicate that 13,100 returns filed in 1978 claimed the conservation deduction and 798 returns claimed the alternative energy system credit. The Energy Division plans to prepare a brochure for distribution in March 1979 which will describe the two programs and the procedures required to claim either deductions or credit.

5.11. DEPARTMENT OF SOCIAL AND REHABILITATION SERVICES

The Department of Social and Rehabilitation Services (SRS) administers one energy-related program through its Aging Services Bureau. Title XX funds provided by the Social Security Act support a wide range of human services, including minor home repairs and rennovation of senior citizens' residences. The program is designed primarily to provide minor construction and safety modifications that will permit elderly individuals to continue to live comfortably in their homes; certain of these modifications also improve energy efficiency. During the period October 1977-September 1978 this program provided 321 units of service at a total cost of $120,703. Planned service through September 1979 includes 245 units of service at a cost of $82,976. However, it must be noted that not all of this service is related to energy efficiency, but the energy-related information is not available. One-quarter of each annual total is state matching funds.

5.12. ENVIRONMENTAL QUALITY COUNCIL

A main function of the Environmental Quality Council staff is to keep legislators informed on environmental and natural resources issues. Energy is one of these areas. In order to answer questions of concern to legislators, EQC has established a list of over 250 experts in the different fields of natural resources and environmental concerns. At least 12 individuals are considered experts in the field of energy conservation. Legislators with questions in this or any other area can submit a request to the EQC staff. They, in turn, will research the subject with the relevant experts, accumulate the answers, summarize and return the information to the legislators.

EQC has compiled a publication entitled *Montana Environmental Index* which summarizes all statues dealing with environmental and natural resource issues, including appropriate energy-related matters. EQC will update this publication after each legislative session.

5.13. MONTANA BUREAU OF MINES AND GEOLOGY

The Montana Bureau of Mines and Geology is currently involved or contemplating involvement in three major energy-related projects. The largest is funded by the Conservation Division of the U.S. Geological Survey, and involves evaluation of coal reserves of all categories within the Fort Union region of eastern Montana. Data on coal beds within the Fort Union Formation are extracted from test drilling in the form of geophysical logs and core samples. These data are published initially in the form of USGS open-file reports and later as a regular Bureau and USGS publications.

Another project in progress is a compilation in map form of Montana's energy resources. These energy resources include: coal, oil, gas, oil shale, uranium, thorium, geothermal, and electrical energy. Resource aspects to be illustrated include present point and areal sources, potential sources, distribution networks, and generation points.

The Bureau's Energy Division has also made proposals to begin an evaluation in 1981 of uranium development potential for the Great Falls and Shelby areas. This project would continue through 1983.

5.14. UNIVERSITY SYSTEM

5.14.1. FORD FOUNDATION STUDY

In April, 1978 the Montana University System received a $39,000 grant from the Ford Foundation's program in policy analysis for state environmental management. The foundations funds are being matched with approximately $45,500 in state "in-kind" contributions to develop a methodology for establishing criteria for siting energy and other major industrial facilities in Montana. Ford's program objectives are to encourage experimentation in ways of making data and policy research findings in the environmental field available to state government decision-makers and to help establish effective and continuing relationships between universities and state government agencies.

An Environmental Management Coordinating Committee, directed by the Lieutenant Governor and the Commissioner of Higher Education and composed of state agency and university personnel, was established to define specific problem areas where statewide environmental policy formulation is required. The Committee is responsible for directing the work of joint agency-university task groups on short term policy projects in a variety of environmental areas. The task groups also are responsible for completing the following longer term siting research tasks by the dates noted: 1) analysis of the statutory authority and regulatory framework that affects Montana siting decisions (Feb. 1979); 2) a review of other states' attempts to develop and apply siting criteria (Aug. 1979); 3) development of a methodology for forecasting Montana's energy needs (Jan. 1979); 4) evaluation of available public participation programs for developing and applying siting criteria (Nov. 1979); and 5) development of a methodology for weighting the importance of individual siting criteria (Jan. 1979).

Each task is being directed by faculty from either the Unversity of Montana or Montana State Unversity in conjunction with designated state agency personnel. Approximately half of the salary allocations from the Ford grant are for student fellowships and research assistantships.

5.14.2. WATER RESOURCES RESEARCH CENTER

The Water Resources Research Center at Montana State University is involved in a number of water analysis projects which relate to energy development. Examples of these studies include: "Investigation of Possible Techniques to Predict Groundwater Quality in Mined Lands" and "The Microbial Sulfur Cycle Activity in Waters Associated with A Montana Coal Strip Mine".

5.14.3. OTHER ENERGY-RELATED RESEARCH

Numerous energy-related research projects are underway at the various individual units in the university system, particularly the University of Montana and Montana State University. A few examples include research of the reclamation potential of strip mined land in eastern Montana, air pollution studies, social impact research, and the fuel production potential of bacteria. Several units have also been involved in energy conservation strategies, including monitoring energy use in campus buildings and altering building management patterns to reduce energy consumption.

REGIONAL GOVERNMENTAL ORGANIZATIONS AND ENERGY

6.1 WESTERN GOVERNOR'S POLICY OFFICE (WESTPO)

WESTPO is an independent organization of the governors of ten intermountain-high plains states: Alaska, Arizona, Colorado, Montana, Nebraska, New Mexico, North Dakota, South Dakota, Utah and Wyoming. The new organization, created by the Governors in September 1977 to replace the Western Governors Regional Energy Policy Office, serves as a regional forum and to strengthen the policy management capacity of state governments, particularly in relation to the federal government and multistate institutions in the Western region. The governors are assisted in developing regional policies and programs by the WESTPO Regional Coordinating Council, composed of the governor's executive assistants. Staff advisory committees composed of key state personnel address five primary functional areas: energy, water, agriculture, natural resources and human resources. WESTPO is further assisted by its research, policy analysis and advisory service arm, the Institute for Policy Research.

6.1.1. WESTERN INTERSTATE ENERGY BOARD (WINB)

In accordance with the governor's recommendations to develop effective working relationships with other western multistate organizations, WESTPO conducts its energy policy and program activities with staff support from the Western Interstate Energy Board/WINB.

Funded by the WESTPO states, WIEB/WINB's top priority issues over the past year have included federal surface mining legislation, coal leasing, energy impact assistance to Western states, nuclear waste management, and energy transportation alternatives. Many of these areas are addressed by standing committees composed of state energy personnel. WIEB/WINB serves as WESTPO's contracting agent for various types of energy-related studies and research and publishes a newsletter.

Thirteen states, including Montana and a majority, but not all, of the WESTPO states, are parties to the Western States Nuclear Compact which WIEB/WINB administers. The compact's purpose is to encourage interstate cooperation in development and use of nuclear technologies, formulate a regional plan for dealing with nuclear incidents, collect and disseminate information, analyze legislation and advise and consult with the federal government on nuclear development.

6.2. PACIFIC NORTHWEST REGIONAL POWER PLANNING

Pacific Northwest regional power planning is one of the most important energy-related issues affecting Montana. This subsection summarizes proposed regional energy planning legislation for the Pacific Northwest, with emphasis on Montana's position and participation.

6.2.1. BACKGROUND

Federal generation facilities comprise approximately 60 percent of the installed energy generation capacity in the Columbia River Basin, which includes Washington, Oregon, Idaho and western Montana. As the marketing agency for all federal power produced in the region, the Bonneville Power Administration (BPA) plays a central role in the following discussion (for further detail, see Section 7.1.3.). The western portion of Montana up to 75 air miles east of the Continental Divide is part of BPA's service area.

BPA's enabling legislation states that federal generation facilities shall be operated "for the benefit of the general public and particularly of domestic and rural customers" while at the same time giving preference and priority to public agencies. This language does not assign preference according to end use or ultimate customers of public power agencies. There is a price disparity between low cost hydroelectric power from federal dams, which is made available on a preference basis to public utilities and their customers, and expensive thermal power generated by private utilities. As a result there are price inequities between Washington, where all classes of customers, including large industrial customers, are served primarily by public utilities, and the other states in BPA's service area, particularly Oregon, where private investor owned utilities (IOU's) predominate. Options for more equitable allocation of federal power to end users is discussed more fully in Section 7.1.3.2., but this issue is a central aspect of Pacific Northwest energy planning strategies.

The relatively recent emphasis on the need for Pacific Northwest power planning has been triggered by the fact that nearly all hydroelectric generation sites in the region have been fully developed. As demands for electricity increase, BPA must meet its obligations to its preference customers first, but low cost power is already less available to all classes of customers and will continue to decline over time. New generation based on coal and nuclear energy sources is considerably more expensive and must be merged in some manner into the existing power marketing structure. Because BPA projected that demands for electricity will exceed the output of the Federal Columbia River Power System, BPA has taken the following actions: in 1973 it stopped selling power to IOU's on a firm basis; BPA also informed its direct service industrial customers (DSI's) that their contracts, which expire over the period 1981-91, will not be renewed; and in 1977 BPA informed its preference customers that their load growth could not be guaranteed to be served after 1983. Further, there is a possibility that the State of Oregon may attempt to qualify as a preference customer by creation of a statewide public utility (Domestic and Rural Power Authority) and thereby further dilute the amount of available low cost power.

The primary issues needing resolution are: 1) allocation of power and costs among the various classes of customers in the region; 2) need for a regional energy planning body, either BPA or a new organization, with responsibility for assessing the need for power and determining the best means to

meet the need on a coordinated, regional basis; 3) need for federal purchase authority to help finance development of new generating sources in the region; 4) the role of conservation and renewable energy sources in power planning decisions; and 5) the respective roles of the states, utilities, industry, the public and BPA in the energy planning process.

6.2.2. PACIFIC NORTHWEST ELECTRIC POWER PLANNING AND CONSERVATION ACT

In August 1978 Senator Jackson of Washington introduced the Pacific Northwest Electric Power Planning and Conservation Act. The bill's major features are summarized below. BPA would be responsible for assuring adequate power supplies in the region, a responsibility which has traditionally belonged to the utilities. BPA would have authority to purchase the output of new generating facilities in the region. The bill would establish a system of priorities to guide decisions to invest in new generation. Conservation, renewable resources, and energy-efficient fossil fuel technologies such as MHD that are "feasible" and "cost effective" (as determined by the BPA administrator) would be considered before other resources such as coal-fired and nuclear plants. All BPA purchase contracts could be disapproved by the Senate Energy Committee and the House Interior Committee if action is taken within 90 days of receipt of a contract.

The existing preference clause which governs BPA's allocation of power would be retained, but new public power bodies may be created and rural and domestic customers of IOU's are also given specific priority. All power would be pooled and distributed at a single average cost to all customers except the DSI's who would absorb higher power costs. Two Montana DSI's, Stauffer Chemical Company and Anaconda Aluminum Company, would be affected.

The BPA administrator would be empowered to set up a regional power plan which would include 20 year energy demand forecasts, conservation programs, and scheduling of resources to be acquired to meet the demand. In addition to purchase authority for generation constructed by utilities, BPA would be authorized to construct and operate renewable and nonrenewable electric generation facilities, including coal fired and nuclear plants. BPA may determine the length of long term contracts for power sales to DSI's and the amount and value of interruptible power (i.e., power that may not be delivered if higher priority customers require it).

A Consumers Council comprised of two members from each Congressional district in the BPA service area would be created to provide advisory input. BPA would be empowered to establish conditions for membership and the governors of each state in the region would be given appointment powers. A Utility Council composed of representatives from the various types of utilities would also be created for advisory purposes. The entire state of Idaho is included in the definition of BPA's service area; Montana is limited to the current BPA service area.

The bill would exempt utilities and BPA from the federal Holding Company Act but does not adequately explain or justify the need for the exemption.

6.2.3. MONTANA'S POSITION

Montana has not supported Senator Jackson's bill (S. 3418) primarily because it would surrender control of energy-related planning, demand forecasting and energy facility siting to a federal agency via a process not publicly accountable to the residents of the state and the region. In addition only the western third of Montana could benefit from the bill even though the remainder of the state is an area of potential supply for growing energy demands west of the Cascades.

As introduced, S. 3418 would preempt the Major Facility Siting Act directly and indirectly. Direct preemption would result because BPA would, for the first time, be granted the authority to construct generating facilities, and federally owned facilities are exempt from the act. Indirect preemption would result because an applicant could negotiate with BPA and obtain Congressional approval of a contract for BPA to purchase the output of a proposed facility before state permits are obtained. Montana must re-

tain the authority outlined in the Major Facility Siting Act over any proposals to site thermal generating facilities in the state. This includes the right to deny unacceptable plans.

A key feature of the bill would allow domestic and rural electricity customers of private utilities to have access to low cost federal power which has been previously reserved for public utility customers. Montana does not in principle oppose this rate relief as long as state retail rate making authority is not impaired. However, S. 3418 would, by ecompassing only the present BPA service area in Montana, create rate disparities among rural and domestic customers of the Montana Power Company. Those customers in the western third of the state could have cheaper power than customers in the rest of MPC's service area. Such an artificial division of Montana is unacceptable.

Montana favors the creation of a publicly accountable regional power planning body, which can integrate state and utility energy forecasts to determine the need for new generation and to determine the most cost effective means of balancing supply and demand. However, Montana must have full and equal representation in such a regional authority.

Conservation and renewable energy sources must be strongly emphasized. As proposed, the bill could permit "cost effective" comparisons between energy alternatives which are based on average system costs for traditional forms of generation and incremental costs for conservation and renewable energy. Cost comparisons must be based upon the incremental costs of delivered energy for all alternatives.

In order to lower total financing costs of new generation, Montana has not opposed allowing BPA to purchase the output of new energy facilities provided that BPA purchase decisions are preceded by: 1) certification of a need for additional power by a publicly accountable regional body; 2) state siting certification for the facility in question; and 3) comparative studies which have determined the most cost effective power supply option. Also sufficient disincentives must exist to minimize plant inefficiencies and "dry holes" (i.e., financing of plants which later prove inoperable).

S. 3418 did not pass during the 1978 Congressional session; however, the bill is certain to be reintroduced in some form in early 1979.

6.3. WESTERN SOLAR UTILIZATION NETWORK (WESTERN SUN)

Regional planning for solar energy development, a move away from centralization of federal solar activities, began in April 1977, when the Energy Research and Development Administration (ERDA) (now DOE), in connection with establishment of the National Solar Energy Research Institute (SERI), invited the fifty states to form regional solar commercialization organizations. By June 1977 the thirteen states of the Western region had drawn up a proposal for a regional planning project. WIEB/WINB (see Section 6.1.1.) agreed to serve as the contracting agency for the federal grant; however, actual management of the project was delegated to a Solar Planning Committee made up of one designee of the governors of each of the participating states. A small staff, operating under the name Solar Planning Office-West/(SPOW) was recruited to coordinate states' activities, assist the states when requested to do so, and draft a final report.

SPOW provided a grant to each state to conduct its own solar planning effort; most states employed a principal investigator to conduct the planning effort and formed a local grassroots Solar Advisory Group to provide assistance. The Solar Planning Committee then converted the projects submitted by each state into a report which was submitted to DOE in April 1978 for review and funding. Examples of the forty projects recommended for funding include solar technician training, compilation of solar books for homeowners, evaluation of passive and hybrid solar systems, funding for solar advisory

groups, and solar tree farms. The report also recommends the form and structure of a regional solar organization, the Western Solar Utilization Network (Western SUN), to carry out the program recommendations. Portland, Oregon was chosen for the central office for Western SUN.

Western SUN was created under a supplemental agreement to the Western Interstate Nuclear Compact. The governors of the participating states each appointed a representative to serve on the WSUN Board of Directors. At its annual meeting in September 1978, the Board selected an Executive Director and adopted bylaws. DOE has indicated that initial funding to begin to staff the office in Portland and to fund the more critical solar commercialization and information projects will occur in October 1978.

6.4. OLD WEST REGIONAL COMMISSION

The Old West Regional Commission (OWRC) was established in 1972 under the Public Works and Economic Development Act of 1965 to formulate and carry out coordinated action plans for regional economic growth and development. Montana, Nebraska, North Dakota, South Dakota and Wyoming comprise the Old West region. OWRC's energy program places emphasis on assisting state and local governments in coping with impacts of energy development. Over the past years funds were provided for public service personnel to meet enlarged community requirements and for demonstrating how to minimize the environmental effects of energy development upon water, land and air quality.

OWRC financed the "Yellowstone Impact Study" which DNRC prepared for the purpose of evaluating the potential physical, biological, and water use impacts of water withdrawal and development in the middle and lower Yellowstone Basin. During the past year the potential of inadvertent weather or climate modification due to coal development has been studied. One research project involved airborne and surface measurements of heat and water vapor outputs of several power plants in the region. OWRC supported energy development impact studies conducted by the Crow and Northern Cheyenne tribes. The commission also sponsored a five-state workshop on conservation measures as a prelude to a continuing program to promote good conservation practices by public and private consumers in the member states.

The commission maintains an extensive energy data base known as the Energy Research Information System (ERIS). The system includes more than 1000 projects on various aspects of Western energy development which are entered in DOE's RECON data base.

6.5. WESTERN INFORMATION NETWORK ON ENERGY (WINE)

In October 1977 representatives of regional, federal and state energy information organizations and agencies organized the Western Information Network on Energy (WINE). WINE's primary purpose is to coordinate existing energy-related information and sources of information with the needs of users

in the ten-state Rocky Mountain-Plains region. To meet the goal of providing accurate information concerning Western energy resources, production, and distribution to individuals, industry and government agencies, WINE has identified the following four initial work tasks; 1) development of a directory of regional, state, and local information sources; 2) identification of gaps in available energy information; 3) development of educational programs for the benefit of WINE members; and 4) writing of a periodic newsletter to maintain contact both within and outside of WINE.

A key strategy of the organization is to prevent duplication of energy information and dissemination programs while concurrently influencing development of quality information.

A three-member executive committee directs the organization's activities. One representative from each of the following areas serves on the committee: Northern (Montana, Wyoming, North Dakota, South Dakota, and Nebraska), Central (Colorado and Utah) and Southern (Arizona, New Mexico and Nevada). Montana members include the Energy Division, EPA-Montana Energy Operations Office, and Montana State Library.

6.6. THE MISSOURI RIVER BASIN COMMISSION

The Missouri River Basin Commission is composed of the ten states located in the Missouri River drainage and is organized under the Federal Water Resources Council.

6.6.1. YELLOWSTONE BASIN AND ADJACENT COAL AREA LEVEL B STUDY

The Missouri River Basin Commission sponsored the Yellowstone Level "B" Study to identify a set of management alternatives for development and conservation of the water and related land resources of the study area to meet as many needs as practicable within the limits of physical, social and institutional constraints. In particular the study identifies the area's problems and needs as related to local, state, regional and national objectives over the next 10-25 years. Conflicts over use of the area's natural resources are mainly between those who would divert water from the streams and rivers for out-of-stream uses and those who advocate using the water as instream flows.

The study identifies the appropriate agencies to complete more detailed feasibility studies and includes recommendations for implementation of some projects and programs which are subject to the satisfactory completion of appropriate Level C (pre-construction) studies. The study urges that an amount of water sufficient to sustain aquatic organisms without significant long term reduction in quantity and quality should be left as instream flows.

Harza Engineering Company authored the energy section of the Level B study. Included is a computerized model that estimates energy related demands for water, labor, land, capital and coal resources in the Yellowstone study area under alternative energy development scenarios.

The Yellowstone Basin and Adjacent Coal Area Level B Study was completed in mid-1978 and is being reviewed.

6.6.2. UPPER MISSOURI LEVEL B STUDY

The Upper Missouri Level "B" Study is similar in purpose and design to the Yellowstone Basin Study described in the previous section. The Upper Missouri Study commenced in early 1978 and is scheduled for completion in 1980.

The base year being used for analysis is 1975, with a near-term analysis period running through 1990 and a mid-term analysis period through 2000.

The Energy Division will author the section of the study concerning estimated energy water requirements. This will include a determination of existing water use by the energy industry, the estimated future potential for development, and estimated future water requirements for energy generation and cooling. Other cooperating agencies include: DNRC's Water Resources Division, Montana Power Company, Bureau of Reclamation, Federal Energy Regulatory Commission, Army Corps of Engineers, and Bureau of Land Management.

6.7. PACIFIC NORTHWEST RIVER BASINS COMMISSION (PNRBC)

The PNRBC was established in 1967 under terms of the 1965 Water Resources Planning Act at the request of the Governors of Idaho, Montana, Oregon, Washington and Wyoming. The commission serves as the principal coordinating agency for federal, state, interstate, and other plans for development of water and related land resources in the region. The commission has a number of technical committees to carry out special assignments. The Power Planning Committee is charged with annually reporting on future long-range regional load requirements, the operation and economics of federal hydro projects and coordinated operation of the power systems of the Pacific Northwest. The reports also include summaries of significant energy-related activities in the region during each calendar year, including research and development projects. The administrator of the Energy Division is a member of this committee.

In November 1978 the Committee co-sponsored a thermal power planning conference at Pullman, Washington in conjunction with the Washington State University Engineering Extension Service. Discussion topics included power planning decisions to 2020, modeling techniques, alternative energy generation sources and future peaking alternatives for power generation.

6.8. YELLOWSTONE RIVER COMPACT

The Yellowstone River Compact, executed by Montana, Wyoming, and North Dakota, and ratified by Congress in 1951, allocates waters of the Clarks Fork, Yellowstone, Bighorn, Tongue, and Powder rivers. The compact recognizes water rights prior to 1950, those rights designated to provide supplemental water supplies to land irrigated prior to 1950, and water rights for irrigation projects started before 1950. The compact divides the remaining water according to percentages of the flow at the mouths of the streams as shown in Table VI-1.

TABLE VI-1
DIVISION OF WATERS UNDER THE YELLOWSTONE RIVER COMPACT

Tributary	Wyoming	Montana
Clarks Fork Yellowstone	60%	40%
Bighorn	80%	20%
Tongue	40%	60%
Powder	42%	58%

Source: Yellowstone River Compact

Article X of the compact prohibits diversion of water out of the Yellowstone Basin without the unanimous consent of the signatory states. This article has recently become controversial because Wyoming would like to divert water out of the basin for energy development purposes.

In June 1973 Intake Water Company (Intake) filed a notice of appropriation for 111.4 ft^3/s (80,650 acre-ft per year) of the waters of the Yellowstone River Basin in Dawson County, Montana. Intake proposes to divert 30,000 acre-ft of the water from the Yellowstone River in Dawson County for sale to municipal and industrial users in the Little Missouri River Basin.

In 1974, Intake filed applications with DNRC and the Wyoming State Engineer's office for permits to appropriate water and construct a dam and water storage reservoir. The project, known as the Moorhead Reservoir and located on the Powder River, would provide water primarily to industry. Intake projects the annual usable yield of the reservoir to be approximately 110,000 acre-ft. Montana and Wyoming would divide the water according to the Yellowstone Compact. Intake proposes to divert 33,300 acre-ft per year of Wyoming's Compact entitlement from the Yellowstone River Basin, to the Belle Fourche River Basin in the Gillette, Wyoming area.

The issue of obtaining approval for inter-basin transfer of water is controversial. Intake took the position that the Yellowstone Compact Commission has the authority to give approval and formally requested the Commission to approve its water diversion proposals in November 1977. However, the Commission believes that the authority for approval for transfer lies in each state's legislature and in November 1978, denied Intake's request. North Dakota has approved interbasin water transfers, but neither the Montana or the Wyoming legislature has acted.

6.9. REGIONAL COAL LABORATORIES

The 1977 Federal Surface Mining and Reclamation Act authorizes funds to: 1) conduct research and demonstration on mining and mineral resources problems through state research institutes and 2) establish ten university coal research laboratories.

The Governor has designated the Montana College of Mineral Science and Technology as the state's nominee for the mining and mineral resources funds. Congress appropriated $2.2 million to be divided among qualified applicants during FY 79. States must provide matching funds and must expend the monies to support research and training in mining and mineral resources problems and specific demonstration projects of industry-wide application and to provide scholarships and graduate fellowships in specified fields. The Montana College of Mineral Sciences and Technology applied for a share of the funds in August 1978.

Title 8 of the surface mining act specifies that one coal research laboratory shall be established in each major coal province. Although $30 million is authorized for FY 79 Congress did not appropriate the funds during the 1978 session. DOE has indicated that regionally sponsored applications for funding are preferred. Therefore the governors of the five states in the Old West region appointed a steering committee which requested proposals from persons wishing to draft a proposed structure and plan of work for the laboratory. Faculty of Montana State University were selected and work is underway to inventory research and educational capabilities of universities in the Old West region, identify coal research problems suitable for study in the region and evaluate various operational and organizational alternatives to meet the funding requirements.

FEDERAL AGENCIES

ENERGY—RELATED PROGRAMS

7.1. DEPARTMENT OF ENERGY

The U.S. Department of Energy (DOE) was established October 1, 1978 to consolidate the various energy activities dispersed throughout the federal government. Principal functions transferred to the new department include those previously undertaken by the Energy Research and Development Administration, Federal Energy Administration, and Federal Power Commission as well as selected functions of the Department's of Interior, Navy and Commerce and the Interstate Commerce Commission.

DOE will be responsible for administering many of the programs and regulatory measures included in the National Energy Act. Congress passed this legislation in October 1978 in the form summarized below.

7.1.1. NATIONAL ENERGY ACT

The energy conservation section provides for the following programs: 1) weatherization grants for insulating lower income homes; 2) annual grants to states for three years to improve the energy efficiency of schools, hospitals and municipal buildings; 3) a three-year program for installing solar heating and cooling systems in federal buildings and a program to purchase photovoltaic energy devices; 4) a program for federally subsidized energy conservation loans to elderly and moderate income families; and 5) a program requiring utilities to inform their customers of suggested energy conservation and solar energy measures, with projected cost and energy savings data.

The coal conversion section prohibits use of oil or natural gas in new utility generation facilities or in new industrial boilers, gas turbines, internal combustion, and combined cycle units with a capacity greater than 10 MW, unless DOE grants exemptions. For existing power plants and industrial facilities, DOE is given authority to require existing coal-capable facilities, individually or in categories, to convert to coal and other fuel use, and for non-100 percent coal-capable units, to require use of coal-oil mixtures or alternative fuels. Utilities are prohibited from using natural gas after January 1, 1990. Supplemental authority to prohibit use of natural gas in small boilers for space heating is provided. A loan program is also created to assist companies to raise necessary funds for pollution control.

The public utility rate reform section establishes eleven rate making standards as voluntary guidelines for states to encourage conservation, including time-of-day rates, seasonal rates, cost of service pricing and interruptible rates. State regulatory authorities and utilities must formally consider the standards within prescribed periods. DOE is given the right to intervene in state rate-making cases to raise consideration of standards.

The Federal Energy Regulatory Commission (FERC) is required to prescribe rules favoring industrial cogeneration facilities and requiring utilities to buy or sell cogeneration power at fair rates. FERC is given authority to require physical connections of electric power transmission facilities and to order utilities to provide transmission services between non-contiguous utilities.

The natural gas segment creates a single national market for gas sales which makes between one and two trillion cubic feet of gas per year (between five and ten percent of current usage) available to the interstate market for first time. Increased supplies resulting from the merger of intra- and interstate markets and new production incentives could displace up to one million barrels per day of foreign oil or an approximate ten percent reduction in total projected imports by 1985.

Price controls on interstate and intrastate gas would be extended to January 1, 1985. After 1985, controls would be removed for six months; at that point the President and Congress could reimpose controls for eighteen months. The price ceiling on new gas would be $1.75 per thousand cubic feet, as of April 1977, with escalation provisions to deal with inflation. The ceiling would rise annually by the rate of inflation plus 3.7 percent to 1981; thereafter, by the rate of inflation plus four percent until 1985. New gas is defined as any gas produced 2.5 miles away from, or 1,000 feet deeper than, an existing well or from a reservoir that has not produced commercially. New gas is incrementally priced to industrial users up to the regional cost of substitute fuels, thus insulating residential consumers from gas price increases. Federal authority is granted to allocate gas in emergencies to supply residences and small commercial users.

7.1.2. ENERGY BUDGET

DOE's budget for fiscal year 1979 encompasses the period from October 1, 1978 through September 30, 1979, and is divided into the ten primary missions depicted in Table VII-1. Approved funding is approximately $10.8 billion. Increases over 1978 funding center primarily on conservation, emergency preparedness, regulation, energy information, policy and management, and atomic energy defense missions.

DOE has announced that its Helena field office will be closed on January 1, 1979.

TABLE VII-1
DEPARTMENT OF ENERGY FY 1979 APPROPRIATIONS
(In thousands)

Mission	
Energy Supply - Research and Technology Development	$ 2,951,758
Energy Supply - Production Demonstration and Distribution	431,578
Conservation	811,743
Regulation	109,573
Emergency Preparedness	3,008,750
Energy Information	59,286
Environment	215,588
Policy and Management	366,338
General Science and Research	432,300
Atomic Energy Defense Activities	2,619,283
Subtotal	**$11,006,197**
Unobligated balances brought forward	-207,270
Total DOE	**$10,798,927**

Source: Department of Energy

7.1.3. BONNEVILLE POWER ADMINISTRATION

7.1.3.1. ROLE ENVIRONMENTAL IMPACT STATEMENT

In mid-1974 the governors of the Pacific Northwest states requested preparation of a regional environmental impact statement on energy planning in the Pacific Northwest. The study was split in two parts: the Pacific Northwest Regional Commission funded one part which was called the Pacific Northwest Policy Project (NEPP); BPA was responsible for the other part and in April, 1975 issued a publication entitled, "BPA Participation in Regional Interutility Cooperation." In response to strong criticism that the EIS was too narrow in scope, BPA prepared and circulated an outline of a greatly expanded study which included the hydro-thermal program and other power supply arrangements. Two lawsuits filed about this time also led BPA to further expand the scope of the study. The Port of Astoria filed a suit on the location of the proposed Alumax aluminum plant and the resulting district court decision required BPA to write an impact statement on its contract to supply electricity to the plant. The Natural Resources Defense Council filed the other lawsuit to stop BPA from signing long term power supply contracts without an EIS.

The resulting BPA document, issued in July 1977, is entitled "The Role of the Bonneville Power Administration in the Pacific Northwest Power Supply System, Including its Participation in the Hydro-Thermal Power Program." The study includes a summary of the regional electric supply system and the role of the BPA, detailed technical information on power resources, planning and operations, transmission, and power marketing, and a supplemental EIS on the Alumax aluminum plant proposal. The impact statement is a central source for information that was previously not easily accessible to the general public, includng information on the way that electric generation is planned and operated in the Pacific Northwest and the role BPA plays in the region. It provides projections of the future energy needs of the region and explores alternate ways of planning for the future.

Issuance of the document and the ensuing public meetings and comment period occurred during the initial period of debate over Pacific Northwest power planning legislation (see Section 6.2.). The EIS enabled numerous individuals and public interest groups to participate more knowledgeably than had previously been possible. Considerable interest surfaced in Montana, which is in a unique situation with regard to BPA and the Pacific Northwest. BPA serves only western Montana. Consequently, the role EIS and legislative debates contained very little mention of eastern Montana even though the Pacific Northwest Hydro-Thermal Power Program envisions meeting future electric needs by a combination of nuclear and coal-fired plants. Most of the coal mines and some of the generating plants would be located in eastern Montana and Wyoming. The current status of the regional power planning debate is discussed further in Section 6.2.

7.1.3.2. ALLOCATION

In the early days of federal involvement in dam construction and electricity generation in the Pacific Northwest, a mix of municipal electric departments, public agencies and private utilities were meeting the area's demand for electricity. To justify the construction of large hydroelectric facilities it was necessary to insure that there would be sufficient markets for the power. Therefore, BPA made long term contracts with direct service industrial customers in the aluminum industry at very low rates to encourage them to invest in facilities in the region. Over the years the Corps of Engineers and the Bureau of Reclamation expanded the region's hydroelectric generating capacity at a rate sufficient to meet the growing demands of BPA's customers. These customers were growing both in size and number with the formation of new rural electric cooperatives (REC's) and public utility districts (PUD's).

For a number of reasons it has been increasingly difficult for the Corps and the Bureau of Reclamation to add new generating capacity in the region. The best sites for hydroelectric facilities have already been developed and at many of these sites the maximum feasible number of generating units have been installed. Also, as the extent of free flowing rivers has diminished with development, and environmental awareness has increased, public opposition to new hydroelectric developments has increased. In recent years BPA has expanded its sources of supply in other ways. Since the Bureau of Reclamation, the Corps and BPA are not authorized to build thermal generation, BPA made exchange arrangements with its customers to facilitate the construction of thermal plants. Under these arrangements, called "net billing agreements," the output of thermal plants is pooled with the rest of the power available to BPA, and the cost is averaged. The owners of the thermal plants are credited for the sale against the bill for the power they buy from BPA. However, the potential for such arrangements is strictly limited since the cost of the thermal power is up to ten times greater than the average cost of BPA power, and the credits have quickly reached the limit of the bills of the owners.

Given BPA's inability to find new sources of electricity to meet the forecasted needs of its customers, and given the fact that even with the thermal power averaged in, BPA electricity is still far cheaper than the alternatives available to most of its current and potential customers, it will be necessary at some point to ration the available federally generated power among the competing customers. (Background information concerning BPA's preference customers is discussed in Section 6.2.). In 1976 BPA estimated that by June 1, 1983 its resources would become insufficient to meet the demand. At that time, BPA proposes to assure each preference customer (PUD, municipal, or cooperative) an annual allocation of either its actual energy load for the previous year, or 25 average MW, whichever is greater. Any load growth beyond the basic allocation will not be served by BPA, and each utility will have to find the additional generation needed to meet its load.

Approximately 45 of BPA's 115 preference customers will require further generation resources immediately upon the date of insufficiency. Of the remainder, some of the smaller cooperatives will not have to look elsewhere for many years, while others will have only three or four years to make new arrangements. As discussed in Section 6.2., the electric utilities of the Northwest, BPA, and BPA's direct service industrial customers, are actively pursuing legislation which would change BPA's operating constraints and which would permit continuation of net billing type arrangements. A major problem in the writing of the legislation is the issue of retaining the cost advantage of existing federal generating resources for public agencies, and the possible dilution of that advantage due to creation of new preference agencies such as new PUD's, the recognition of major cities such as Portland as preference customers, or, as proposed in state legislation in Oregon, the creation of a state agency which would buy power for resale to domestic and rural consumers.

7.1.3.3. COLSTRIP UNITS 3 AND 4 CORRIDOR STUDY AND EIS

In August 1978 a federal interdisciplinary study team drawn from BPA, the Forest Service, BLM, and BIA published the "Colstrip Transmission Environmental Report." BPA was the lead agency. A steering committee composed of representatives from each participating agency and an observer from the Energy Division had oversight responsibility for the study team. The report is a detailed analysis of the probable environmental impacts of the proposed twin Colstrip to Hot Springs 500 KV transmision lines. Alternate two-mile wide corridors are compared using weighted scores assigned to various classes of impacts.

The report is the primary source document for the transmission-related portion of the federal Colstrip EIS which is scheduled for publication in draft form in December 1978 and final form during the summer of 1979. The EIS will include analyses of existing data regarding all phases of the Colstrip project, including mining, generation and transmission. However, federal decisions will primarily concern the routing of the transmission facilities.

The transmission corridor study does not recommend a preferred alternate route, but the following conclusions about the relative impacts of the various routes are presented: 1) the main potential impacts are located in the rugged terrain in the western portion of the study area (i.e., west of Townsend); 2) the Trident to Boulder to Garrison and Trident to Butte to Anaconda to Garrison alternatives would have the least impact on the existing environment. They are nine and eight percent lower in impact, respectively, than the applicant's proposed route which passes through Helena, Avon, Ovando and Jocko Pass to Hot Springs. The two alternatives would have lower impacts primarily because of lower conflict with vegetative cover, commercial

forest land, recreation, and prehistoric, historic, visual and unique natural resources; 3) the Townsend to Boulder to Garrison and Townsend to Helena to Garrison alternatives are six and five percent lower, respectively, than the applicants' proposed route, mainly because of low impact relating to vegetative cover, agricultural land, commercial forest land, recreation and visual resources. The route through Boulder has a lower impact in the rangeland category whereas the route through Helena has a lower impact for fish and wildlife. West of Garrison the alternative routes follow the Clark Fork valley to Missoula and proceed north to Arlee and on to Hot Springs.

7.1.3.4. CORRIDOR REQUIREMENTS FOR THE PACIFIC NORTHWEST

In May 1977, BPA issued a joint draft report with the U.S. Forest Service entitled, "Potential Energy Corridor Requirements for the Pacific Northwest". The report stated that the present hydro-thermal resource mix of 80/20 percent will be replaced by 1985 with a 60/40 percent mix. Planning for a greater dependency on thermal energy sources to satisfy the long term energy needs of the Pacific Northwest must address several questions: 1) long term energy corridor requirements; 2) alternative resource locations; 3) various coal-nuclear mixes; and 4) the technologies that are likely to be available in the time frame of 1985 to 2020.

BPA published a second draft report on corridors entitled, "Pacific Northwest Long Range East-West Energy Corridor Study" in December 1977. This report builds upon the previous corridor requirements study and selects corridor segments "...which should be reserved for future East-West high capacity energy transmission corridors."

According to the corridor requirements study, seven 30,000 MW energy corridors will be needed by the year 2020. This "need" is based upon several assumptions including: 1) a projected annual electricity load growth of 4.9 percent through 2020; 2) the location of generation long distances from load centers; and 3) application of utility industry reliability criteria. The study also assumes that the corridors begin in the eastern Montana-Wyoming coal fields and terminate in the Puget-Williamette area of western Washington and Oregon.

Montana does not accept these two draft BPA studies as sufficient to establish how many corridors should be reserved in "...prudent land use planning." Problems associated with the studies include the followng: 1) demands on Montana's coal resource from areas other than the Pacific Northwest were not considered in determining corridor requirements; 2) the states and public had no input into the preparation of the studies; 3) the corridor requirements study assumes continuation of traditional growth patterns. From a 16,000 MW load today, the Pacific Northwest regional load is projected to an "expected" 160,000 MW in 2020. Simple extrapolation of this expected load growth results in loads of 258,000 MW in 2030 and 327,000 MW in 2035. The latter amount is 7.6 times greater than the total generating capacity presently installed in Washington, Oregon, Idaho and Montana; 4) societal costs in foregone land use alternatives and environmental impact were not considered; 5) conservation and renewable energy sources were dismissed. The corridor requirements study makes the unsupported statement that the "...only viable alternative to reduce corridor requirements is other technology such as nuclear power plants located in either the Hanford-Boardman area or at the western load centers."; and 6) the studies remain in "draft" status and do not reflect public comment.

7.2. DEPARTMENT OF THE INTERIOR

7.2.1. BUREAU OF INDIAN AFFAIRS

At the request of the Crow Tribe, the Planning Support Group of the Bureau of Indian Affairs will publish a draft environmental impact study in late 1978 which addresses the impacts that would result from three assumed levels of coal development on the Crow Reservation and its Ceded Area. The study does not consider specific mining or coal utilization plans and will not be released as an EIS. Rather, it is designed to serve as an information document and educational tool for the Crow Tribe. The study also analyzes effects of Crow coal development on neighboring communities such as the bordering Northern Cheyenne Reservation which has a Class I air quality standard.

7.2.2. BUREAU OF LAND MANAGEMENT

The substantial amount of acreage under federal management in Montana has placed agencies such as the Bureau of Land Management (BLM) in a central position of responsibility with regard to energy development. The BLM is presently involved in several environmental impact statement processes affecting Montana, including the Northern Tier Pipeline and the Colstrip Units 3 and 4 EIS. These projects are discussed in Sections 3.1.5. and 7.1.3.3., respectively. However, the BLM's most singularly important energy-related function in Montana is in the area of coal leasing and the related review of federal coal lands to determine areas unsuitable for mining.

7.2.2.1. NRDC vs. HUGHS

No new federal coal leases have been granted since the Sierra Club v. Morton case halted the process in 1974. Prior to 1974 lease applications were primarily handled on a site specific, case by case basis. The decision in favor of the Sierra Club required the BLM to develop a programmatic EIS on coal leasing which would address regional impacts and instill comprehensive planning into the process. The resulting draft EIS discussed a proposed leasing system entitled the "Energy Minerals Allocation Recommendation System" (EMARS). After receipt of comments, the BLM changed the title to "Energy Minerals Activity System" in the final EIS. In the process proposed in the draft study, various federal agencies were responsible for identifying coal reserves to be considered for leasing. The "Activity" system, on the other hand, relied almost entirely upon leasing tract nominations from industry and the public. The Natural Resources Defense Council brought suit against the Department of the Interior (NRDC v. Hughs) because the final EIS did not adequately discuss the distinction between the two proposed programs nor the ramifications of the change. The public had no opportunity to comment on the final EIS and neither the draft or the final study adequately considered a "no action" alternative although information introduced during the court proceedings indicated that existing leases have been estimated as adequate to meet the demand for federal coal for the next 121 years at the anticipated 1985 rate of production.

In September 1977 the court enjoined Interior from taking any steps whatsoever to implement a new federal coal leasing program and ordered the agency to prepare a draft supplement and a new final EIS. Under the original court decision and a subsequent modification issued in April 1978, short term leasing is permitted in specific quantities and under the following conditions: 1) when the proposed lease

is requred to maintain an existing mining operation and employment at 1977 production levels; 2) when additional reserves are needed to meet binding contracts; 3) when the lease would permit orderly mining at an existing operation and mining at a later date would significantly increase costs or environmental damage; and 4) when a proposed lease could be exchanged for an existing lease in an alluvial valley floor. These exceptions involve 35 leases and represent production increases of 13-17 million tons per year. The present national annual production from federal coal leases is 50.4 million tons.

Interior is also allowed to process and prepare EIS's for 20 preference right lease applications. Priority must be given to: 1) tracts on which 90% of the reserves would be deep-mined and total surface mining would affect less than 50 acres; and 2) operations which would not require substantial additional transportation facilities, water storage or supply systems, or involve substantial new industrial development in the region. The leases selected may not actually be granted, however, until Interior has complied with the entire court order.

7.2.2.2. NEW COAL LEASING PROGRAM

The new programmatic draft EIS on coal leasing was released in December 1978. As a result of NRDC v. Hughes, the Secretary of the Interior is personally responsible for identifying priorities and preferred alternatives for program implementation. The new preferred program is based on four major elements: 1) a system to evaluate federal coal demand and regionally determine the amount of additional production that must be stimulated by federal coal leasing; 2) a planning system applying environmental protection standards to decide, in consultation with state and local governments, industry and the public, which reserves should be leased; 3) procedures for conducting sales and issuing leases; and 4) post-lease enforcement of terms and conditions.

A basic function of the programmatic statement is to evaluate and compare environmental impacts of different levels of federal coal development. The West has been divided into six regions generally corresponding to the major coal basins. The draft EIS breaks down national coal demand projections from the Department of Energy to the regional level, evaluates the ability of existing leases and non-federal reserves to meet projected production requirements. Regional production targets will be subsequently be set in consultation with the state governments. The targets will include estimates of the amount of additional leasing that will be required.

All new leases must be compatible with a comprehensive land use planning framework the BLM is already completing under the Federal Land Policy and Management Act. The planning system will utilize all new federal legislation to apply the following criteria: 1) establish minimum coal quality standards; 2) screen out lands which, by statute, cannot be leased (e.g., national parks); 3) screen out lands which cannot meet other suitability standards (e.g., alluvial valley floors and critical wildlife areas); and 4) screen out lands which are not reclaimable (as defined in the federal surface mining act). Major resource trade-offs will be made and "suitable" areas identified. Previously completed area management plans, which in Montana include the Decker-Birney area, the south Rosebud area, and the Coalwood Resource Area, will be screened individually according to all new standards and all areas "suitable" for mining published in a notice of availability for leasing.

A State Coal Leasing Task Force, comprised of seven Western states with coal reserves, reviewed the entire plan at a preliminary stage and set priorities which would maximize the states' future options for participation in all phases of the process. The Commissioner of State Lands represented Montana in this process.

The Department of the Interior has plans to resume leasing by mid-1980. The entire planning effort represents several years of data collection, but final implementation of the process is proceeding in a much shorter time frame. The coal management program is scheduled to be established in June 1979.

7.2.2.3. NORTHERN TIER PIPELINE EIS

BLM is the lead agency responsible for preparing the federal environmental impact statement on the proposed Northern Tier crude oil pipeline. A description of the project and Montana's involvement is discussed in Section 3.1.5.1.. The BLM study includes the entire five state region (Washington, Idaho, Montana, North Dakota and Minnesota) that the proposed route traverses as well as all associated port and terminal facilities. A draft of the federal study was released in January 1979 and a final document is to be completed by May 1979.

7.2.2.4. ENERGY MINERALS REHABILITATION INVENTORY AND ANALYSIS (EMRIA)

EMRIA is a special BLM administered program, established for the purpose of determining the reclamation potential of lands affected by coal development. In cooperation with the Bureau of Reclamation and the Geological Survey, samples of soil, overburden, coal, substrata, vegetation and water are collected and analyzed. These data serve as a basis for: 1) assessing reclamation potential prior to leasing; 2) preparing site specific stipulations for energy exploration, mining and reclamation plans; and 3) providing a baseline on which to monitor changes that may occur during and after coal strip mining. Montana study areas include Pumpkin Creek, Bear Creek, Dam Creek, Otter Creek East, East Trail Creek, and Hanging Woman Creek, all located in the Tongue and Powder River drainages of southeastern Montana.

7.2.3. BUREAU OF RECLAMATION

The Bureau of Reclamation (BR) operates three hydroelectric facilities in Montana: Hungry Horse, Yellowtail and Canyon Ferry. The latter is the subject of a study discussed in Section 3.2.1.2. to add further generation capacity.

The State of Montana has entered into a memorandum of agreement with BR which permits Montana to market up to 300,000 acre-feet of water from the Fort Peck reservoir. The Army Corps of Engineers operates this facility, but BR is responsible for marketing the water in the reservoir. No contracts have been finalized, but the state is negotiating with Dreyer Brothers, Inc., a wholly-owned subsidiary of Burlington Northern, for sale of 32,000 acre-feet. The water would be used for coal-related development in McCone County (see Section 3.1.4.1.).

The option for a similar type of agreement may eventually exist at Yellowtail Reservoir. A number of industrial development corporations have held options for water from Yellowtail for several years. BR has announced that it intends to cancel these options as they come up for renewal unless specific plans for use of the water are provided. As a result the water may become available to the State of Montana for marketing purposes.

7.2.4. FISH AND WILDLIFE SERVICE

The Fish and Wildlife Service has primary responsibility for protection and enhancement of the nation's wildlife resource.

7.2.4.1. WESTERN ENERGY AND LAND USE TEAM (WELUT)

WELUT is located in Fort Collins, CO and is a special FWS project that has been established to improve the base of fish and wildlife information available to governmental decision-makers charged with reviewing energy development proposals and other types of land use changes and formulating environmental regulations. WELUT studies and programs are directed toward fish and wildlife related problems associated with development of coal, oil shale, and geothermal resources and allocation of water for these purposes. The studies are designed to facilitate more rapid assessment of environmental impacts and formulate potential solutions. Remote sensing mapping techniques, computerized data and modeling systems and field and laboratory studies are employed. A few examples of recent WELUT studies conducted wholly or partially in Montana include: *Natural Resource Geographic Data Bases for Montana and Wyoming; Environmental Guide to Western Surface Mining—Northern Great Plains; Bibliography of Rare Fishes of Upper Missouri River System; Instream Flow Strategies;* and *Reclamation Potential of Energy Disturbed Lands.*

7.2.5. GEOLOGICAL SURVEY

The Geological Survey is involved in several environmental impact statement processes in Montana, including the Northern Powder River Basin regional EIS (see Section 5.4.2.), the federal Colstrip Units 3 and 4 EIS (Section 7.1.3.3.), and various projects discussed in Section 3. The Geological Survey is responsible for certain aspects of coal mine regulation which are described in relation to the duties of the new Office of Surface Mining, Reclamation and Enforcement in Section 7.2.6.

7.2.6. OFFICE OF SURFACE MINING

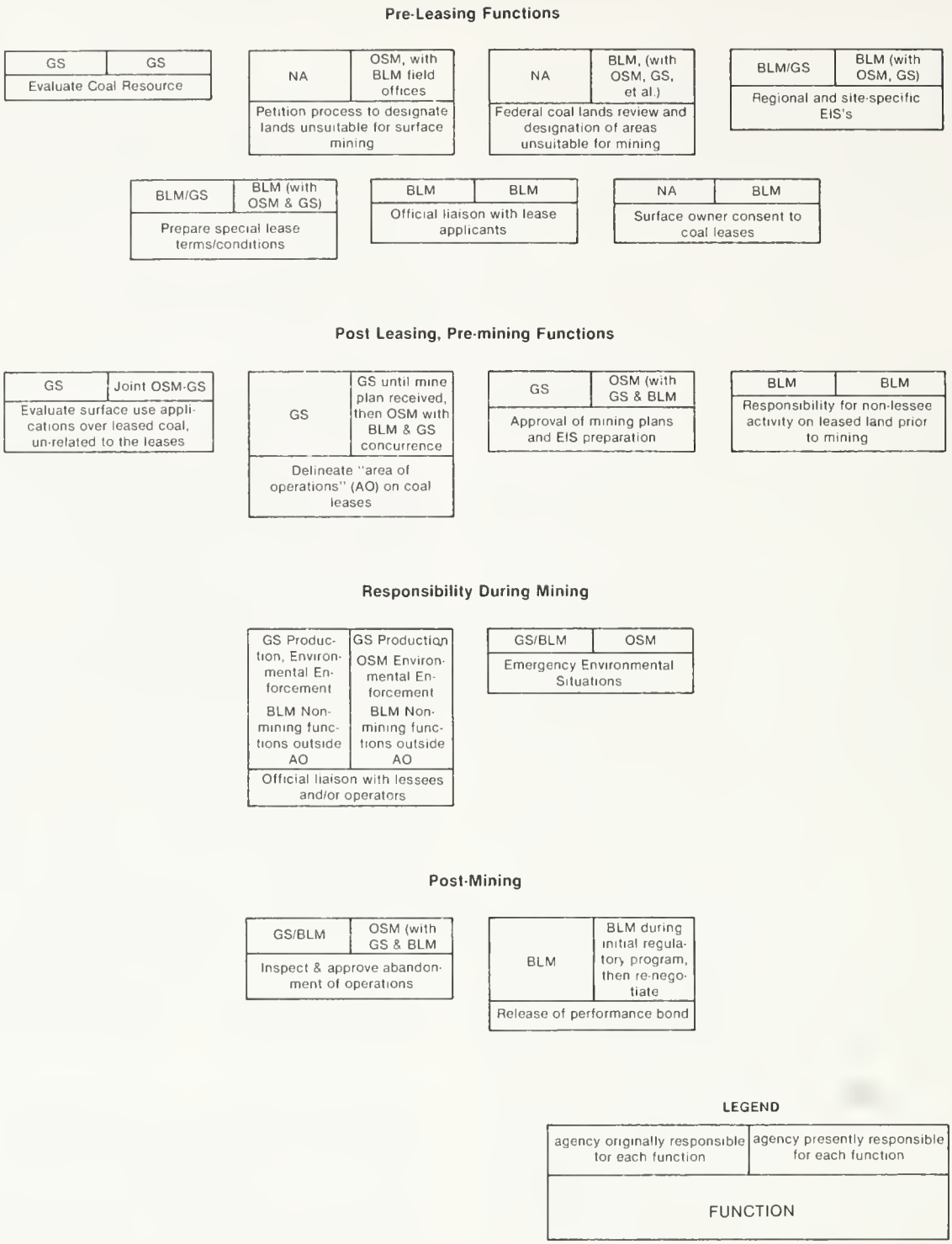
The Office of Surface Mining, Reclamation and Enforcement (OSM) administers the 1977 federal Surface Mining Control and Reclamation Act. (Key provisions of the act are summarized in Section 5.4.1.1. of this report). OSM has a field office at the Region VIII headquarters in Denver which is directly responsible for coal mining operations in Montana and other states of the Rocky Mountain West.

Passage of the surface mining act necessitated re-assignment of existing agency functions and responsibilities for federal coal management. Under the Mineral Leasing Act and the Federal Land Policy and Management Act, the Geological Survey (GS) and Bureau of Land Management (BLM) have shared responsibility for managing federal coal and federal lands overlaying coal formations. GS has been responsible for: 1) evaluating the mineral characteristics and value of the coal resource; 2) recommending logical mining units and royalty types, amounts and rent; 3) evaluating and recommending approval of mining plans; and 4) regulating all aspects of production, resource recovery and most aspects of environmental protection relating to mining. BLM has been responsible for all aspects of surface management, including coal leasing, development of land use plans for public lands, protection of natural resources, land reclamation and regulation of pre- and post-mining land use. GS and BLM functions have required particularly close coordination in preparing site-specific, pre-lease EIS's concerning lease tract selection, preparing lease terms and conditions, and evaluating mining plans.

Figure VII-A depicts the re-alignment of coal management responsibilities that has occurred since the Office of Surface Mining was created. The functions are shown in chronological sequence, beginning with pre-leasing activities and progressing through the post-leasing/pre-mining phase to actual mining and post-mining periods. The small boxes attached to each function show the agency(ies) originally assigned to each function.

As noted in Figure VII-A, GS and BLM have retained many of their original responsibilities, especially with regard to management of the coal as a mineral resource and the leasing function, respectively. OSM has primarily taken over evaluation and regulation of mining plans and operations in accordance with its responsibility for environmental performance standards, land reclamation and mine abandonment procedures. During mining, GS retains responsibility for coal production and BLM continues its authority over non-mining functions outside the immediate mining area, as well as special requirements relating to protection of natural resources and post-mining use of affected lands. With most functions, the three agencies are pursuing a policy of substantial consultation and mutual concurrence. This is especially true in the establishment of criteria to guide the federal coal lands review process, the designation of areas unsuitable for mining and the preparation of regional and site-specific EIS's prior to leasing. BLM's specific efforts to design a new coal leasing program are discussed in Section 7.2.2.2.

Although OSM is the federal agency responsible for regulating mining operations and land reclamation, a central provision of the new surface mining act is that the states shall have primary authority in these areas. According to the time schedule stipulated in the act, OSM commenced its inspection and enforcement activities for new surface mines in February 1978 and for existing mining operations in May 1978. This arrangement, known as the initial regulatory period, will continue until individual state regulatory programs and reclamation plans are approved. The requirements and time schedule associated with the state plans is discussed in Section 5.4.1.2.



Source: Department of the Interior 1978

FIGURE VII-A FEDERAL COAL MANAGEMENT - DIVISION OF AGENCY RESPONSIBILITIES

7.3. DEPARTMENT OF AGRICULTURE

7.3.1. FOREST SERVICE

Current energy-related study efforts in Montana which involve the Forest Service include the Colstrip Units 3 and 4 EIS and Corridor Study, the Northern Tier Pipeline EIS, a joint study with BPA concerning east-west transmission corridor requirements, and transmission facility proposals discussed in Section 3 which will cross Forest Service administered land. The Forest Service also manages most of the acreage encompassed by Montana's Overthrust Belt which overlays potentially large deposits of oil and gas (see Section 2.3.).

7.3.1.1. SURFACE ENVIRONMENT AND MINING (SEAM)

The Surface Environment and Mining (SEAM) program was established by the Forest Service in 1973 with a mission to develop and apply the most current mineral-related reclamation and planning technologies. Research, planning and application projects are primarily located in the West where there is strong interest in developing new energy and mineral deposits. One area for SEAM involvement is a project to learn how to plan and manage the socio-economic problems associated with mineral and other resource-related development. Since a thorough social impact assessment (SIA) would cross federal, state, county and community boundaries, it is imperative that all levels of government understand each other's role in planning for development. Current interest by state participants encompasses the following areas: 1) expand data collection to include defining and relating social values to physical and biological concerns and learn how to combine quantifiable social data with scientific data; 2) learn to apply basic sociological principles; 3) develop a standard methodology to deal with human social interaction as it pertains to agency policies and the EIS process; and 4) employ SIA techniques.

7.4. DEPARTMENT OF DEFENSE

7.4.1. U.S. ARMY CORPS OF ENGINEERS

The U.S. Army Corps of Engineers operates hydroelectric facilities at Libby and Fort Peck. The addition of new generation at Libby is discussed in Section 3.2.1.1. The Corps is also conducting feasibility studies for additional generation at Fort Peck (see Section 3.2.1.3.) and for generation at new sites in the Flathead-Clark Fork River Basin (see Section 3.2.2.2.).

7.5. ENVIRONMENTAL PROTECTION AGENCY—MONTANA ENERGY OPERATIONS OFFICE

EPA's Montana Energy Operations Office was established in the fall of 1976 to facilitate the exchange of energy research information between technical research personnel and decision-makers. The office identifies existing or potential problems and identifies specific energy research results or experts who have the capability to help resolve the problems. The office has encouraged development of a research information transfer system which includes all pertinent agencies and libraries in Montana (e.g., the Energy Division, Montana State Library, and the university libraries) and the Regional Energy Information Library located in Denver. The system insures complete coverage of federally funded projects by the state's central repositories and provides a system for dissemination of relevant information to decision-makers.

In July 1978 EPA authorized plans for expansion of the Montana office. In addition to the energy research information program, the new office will be staffed with specialists in the areas of water, air solid wastes, and pesticides and will also include a public awareness coordinator.

LOCAL GOVERNMENT AND ENERGY

8.1. MONTANA LEAGUE OF CITIES AND TOWNS

The Montana League of Cities and Towns cooperated with the Montana Energy Office and local Chambers of Commerce in conducting ten energy conservation workshops in 1977. This included conducting a walk through audit of a large energy using business in each city where workshops were held. A series of slides was produced in advance to pin point energy wastes and potential savings.

The Montana League of Cities and Towns also provided local government officials with training materials necessary to implement locally designed and operated energy conservation and management programs. The materials included film and slide shows that show the needs and potential energy savings.

8.2. CITY OF HELENA

In 1977 the Helena City Commission passed a resolution alerting employees and citizens to the fact that energy conservation is official policy and established an Energy Advisory Board charged with the responsibility of providing recommendations to the City Commission regarding implementation of a community energy program. The Board is made up of eight members representing those who will be directly affected by and those who have experience with energy management programs, including Montana Power Company, Lewis and Clark County, the Lieutenant Governor's Office, the school systems, the City of Helena and private citizens.

A full time energy coordinator provides staff support and performs internal audits on the city's use of energy. The audits examine all buildings, facilities, plants, traffic lights, parks, and street lights. The city's vehicle fleet is also being audited. The city's program includes: 1) implementation of energy conservation measures; 2) an energy education campaign; and 3) a solid waste recycling program. Conservation measures have been implemented in the areas of building management, vehicle fleet management, and street, traffic and park lights. The budget office, working along with Montana Power Company, is presently taking measures to convert city incandescent and mercury vapor street lights to low pressure sodium vapor street lights (LPSV). If a specified number of fixtures are converted to LPSV, the city would realize a 52 percent reduction in overall power consumption for street lights.

In December 1977 the city became involved in a city-county, private-public energy education campaign. The campaign established the City of Helena as the first local government in the state involved in such an extensive effort and served as a demonstration project for other Montana communities. In conjunction with representatives from MPC, the Energy Division, County of Lewis and Clark, and the League of Cities and Towns, the city has undertaken the following: educational announcements via radio, television and newspapers; identification and use of the Lewis and Clark Library as an "energy information resource center"; and workshops/seminars for government, business and residential energy users. The city has organized five lecture/workshops at the library and two energy fairs which have been held at the shopping malls.

In August 1977 the Solid Waste Task Force, a voluntary citizen's committee, formed and thoroughly researched and recommended newspaper recycling to the Helena Citizens' Council. The recommendation was approved in January 1978 and the City Comission authorized the Sanitation Department to begin collection in April 1978. The recycling program paid for itself within six weeks of operation and by the end of May the city had recycled 63 tons and collected $28,000.

PRIVATE SECTOR ENERGY—RELATED ORGANIZATIONS

9.1. MONTANA ENERGY AND MHD RESEARCH AND DEVELOPMENT INSTITUTE (MERDI)

MERDI was established in Butte in 1974 as a tax-exempt, non-profit Montana corporation for the purpose of developing methods for utilizing and conserving Western energy resources and to carry out a major research and hardware phase of the national magnetohydrodynamics (MHD) program.

9.1.1. MAGNETOHYDRODYNAMICS

As a major participant in DOE's national MHD program, MERDI is specifically associated with the Component Development and Integration Facility (CDIF) being built south of Butte. The facility is scheduled for completion in the fall of 1979. The facility will be used to conduct component developmental and systems performance tests on the key hot gas components of an MHD power train and related support equipment. MERDI is also involved in examining the potential impacts (environmental and socioeconomic) of the CDIF on the community of Butte-Silver Bow. The project involves water quality/biological and air quality/biological monitoring and evaluation and identification of socioeconomic impacts. Another portion of the program involves ceramic materials research on MHD channel components to determine the best materials for use.

In addition to MHD research, MERDI is performing a project to coordinate the transfer of information about work being done for the CDIF with information from other MHD research facilities across the country. The second major facility envisioned in the national MHD program is an Engineering Test Facility (ETF). MERDI is under contract to develop and evaluate possible preliminary site screening methodologies and assess the availability of information that might be used in defining the site selection criteria for the ETF.

9.1.2. GLASGOW AIR FORCE BASE RE-USE STUDY

This study effort, sponsored by the Old West Regional Commission, involves defining and analyzing alternative re-uses for Glasgow Air Force Base in northeastern Montana (Valley County). The needs and desires of Valley County residents are a major consideration and MERDI's work to identify the most appropriate re-use for the $200 million base has been complemented by the Valley Industrial Park and the Montana Trade Commission. MERDI has made a broad range of evaluations, including air and atmospheric monitoring and evaluation, review of social and economic baseline data, a historical and cultural examination, and an attitudinal survey on a random sampling of Valley County residents. This research will result in an environmental impact assessment on the various base re-use concepts. One alternative under consideration is a general energy development, demonstration, and manufacturing center, which could involve research and demonstration of fuel alcohol production from

agricultural products. The energy development center also could engage in the manufacture of modular solar homes or wind electrical generators. Other alternatives are the construction of a coal-fired energy plant or the establishment of a railroad car repair and maintenance center.

9.1.3. OTHER PROGRAMS

Besides the ceramic fabrication work for the MHD program, MERDI's applied research laboratory is engaged in fuel cell research and development which has the potential for providing energy with a high and constant efficiency level with low pollution at the generation stage of the process. Another energy-conserving project involves determining the feasibility of converting the homes of four Indian reservations (Cheyenne River in South Dakota, Fort Berthold in North Dakota, and Rocky Boy and Northern Cheyenne in Montana) from current energy sources to indigenous coal for space heating. Because of the current trend in using solid fuel burning heaters, MERDI presently is designing and assembling a solid fuels test laboratory in association with the City of Anaconda. MERDI will test the thermal performance, safety, combustion efficiency and emission characteristics of coal, wood and other solid fuel burning appliances. MERDI is also interested in alternative energy sources; a 1977 grant from DNRC's Alternative Renewable Energy Sources program resulted in feasibility studies of using geothermal sources to heat Warm Springs State Hospital.

9.1.4. PROPOSED PROJECTS

Based on the 1977 Warm Springs feasibility studies, MERDI recently completed a proposal to DOE to convert the domestic hot water system at Warm Springs from natural gas to geothermal energy. This proposal also has support from DNRC. The conversion would reduce the heating bill by about $50,000 per year at today's natural gas prices. A proposed plan also has been submitted to DOE and EPA for the development of a solid fuel burning fluidized bed combustion furnace for residential space heating applications. Another proposal involves preliminary study and identification of critical project elements for a straw-burning central heating plant at Fort Benton. The proposed project is the first phase of a larger program which eventually will demonstrate the practicality of large-scale direct combustion of farm residue as an energy source. Concerning wind energy, MERDI has proposed to purchase, install, demonstrate, and monitor wind turbine generators at Whitehall and Livingston.

9.1.5. CENTER FOR INNOVATION

The Center for Innovation, located within MERDI, was established to promote the development of inventions, including those relating to energy, by providing assistance in all phases of the development process. DNRC's Renewable Alternative Energy Sources program provided a portion of the initial funding for the center. CFI supports inventions by providing patent, technical, business, licensing and marketing assistance in a sequence designed to bring products to a point of marketability as quickly as possible. During the first 15 months of operation, the Center received over 400 requests for assistance which included 50 inventions directly relating to alternate renewable energy. Requests are evaluated in terms of their technical and market feasibility, and, depending upon the nature of the findings in the early stages of product evaluation, various types and levels of assistance are provided. For example, the inventor of an automatic asimuth elevation solar energy collection system has been supported with engineering and design modifications; and the inventor of an energy-conserving, wood-burning furnace has received marketing and sales support to assist him in identifying and determining broader markets for his product. The presence of the Center has interested some inventors in developing their ideas in Montana.

9.2. NATIONAL CENTER FOR APPROPRIATE TECHNOLOGY

In September 1976, the Community Services Administration approved a grant of $3,086,546 to establish a National Center for Appropriate Technology (NCAT) to carry out a program of research and development with a specific mission of developing, modifying, adapting, and implementing short and long range appropriate technologies which can be helpful to society as a whole but particularly to poor people, with emphasis on the problems of rapidly increasing energy costs. The Center was incorporated as a non-profit corporation in the State of Montana and located in Butte, with the bulk of its activities beginning in April 1977. The Center includes the following program facets which will be described in further detail below: grants program, outreach program, information and communications, and technical research.

The Grants Program provides financial support to community action agencies, community development corporations, low-income groups and other eligible grantees to conduct research, experiments in small and intermediate technologies, education and training, technical assistance and economic feasibility and development projects. Approximately 100 organizations and agencies received support during NCAT's first year of operation. Grant applications have indicated a distinct need for projects which address problems of energy conservation alternative energy systems, small scale food production and technology applications appropriate to low income situations. The program also provides matching funds to support ten regional newsletters and five newsletters aimed at low income communities and among senior citizens, migrant workers and minority groups. The following Montana projects have received grants (partial list): Montana Institute of Appropriate Technology (see Section 5.3.4.4.); a feasibility study for a small scale coal mine on the Northern Cheyenne Reservation; Human Resources Development Council projects to develop an automated social service information system, demonstrate optimal solar retrofits for low income households, and teach solar collector construction techniques to high school dropouts; community-designed solar housing on the Northern Cheyenne Reservation; and training five low income people to operate a methane digester.

The Outreach Program employs ten regional field representatives to provide information, technical assistance, and encourage the development of regional appropriate technology organizations. In many communities there is little or no communication between those groups in the forefront of appropriate technology advance and those serving low-income communities. A key task of the regional representatives is to build linkages among the groups. The representatives also monitor NCAT-funded projects on-site.

In performing its Information and Communications function, NCAT provides printed materials to a mailing list of 5000 community action and low income groups and sponsors a variety of conferences and training and technical workshops in appropriate technology, many of which are presented on a regional basis. This program is based on the concept of "networking", i.e., the sharing of information and communication materials and resources among groups and individuals on a decentralized basis. The regional newsletters are an important part of the information sharing network. Types of publications include technical briefs, educational reference materials such as fact sheets and bibliographies, and NCAT project reports. Second year emphasis will be given to developing publications on the social, economic and political barriers to adoption of appropriate technology systems in low income communities and appropriate technology curriculums and educational materials. The NCAT Resource Center handles preparation and dissemination of the information.

The Technical Research program is based on a contract with MERDI for the services of thirty

science and technology personnel who conduct national research in solar energy, residential energy systems, weatherization of mobile homes, flue dampers, cellulose insulation, low energy cooling, regional agricultural systems, biomass, housing, transportation, and economic development. As with the other NCAT programs, emphasis is placed on assistance to low income people.

During the second program year, NCAT's solar energy research will deal with the development and evaluation of various low-cost solar energy appliances which will be directly applicable to the low-income community, with primary emphasis on retrofit applications. The following specific areas will be addressed: passive solar research, solar-reliant greenhouse research, "do-it-yourself" solar collector construction and testing, solar collector testing and laboratory development, passive cooling and thermal shutter research.

The residential energy systems project will undertake research to determine how houses in the United States consume energy by identifying principal areas of heat loss or inefficiency. These data will be used to develop optimum weatherization applications and techniques. Areas of specific research include: insulation monitoring and analysis, window thermal performance research, home energy audit techniques, wood heat research and residential energy monitoring and analysis.

The weatherization training project will use the aforementioned methodoligies to develop training programs and information to address: furnace operation problem diagnosis, moisture problems with insulation, insulation applications, methodology for selecting proper insulation and evaluation of weatherization work.

NCAT is proposing to develop an agricultural program to investigate methods for research and demonstrations in appropriate agriculture that will be applicable to both family farms and urban agricultural. Energy and agriculture have been treated as separate problems to the detriment of both. Many current agricultural practices are energy-intensive. Also, agriculture in any form makes demands upon an ecosystem that would not occur naturally. This program would seek to encourage agriculture that recognizes ecological laws and tries to create optimal conditions for growth. Activities of the program would include demonstration projects on small farms dealing with waste management; alternative cropping and biological control; methods of conversion from chemical to ecological agriculture; examination of production questions specific to urban situations; research in appropriate marketing and family farming economics; and networking in appropriate agriculture.

9.3. ALTERNATIVE ENERGY RESOURCES ORGANIZATION (AERO)

AERO is a citizens' information and education organization, based in Billings, which is dedicated to gathering and disseminating information on renewable energies. Its activities in this area are many. AERO participated heavily in activities associated with state and regional solar planning over the past year. AERO's administrator was the principal investigator for Montana's project and responsible for producing the final Montana Solar Plan. AERO was active in organizing activities throughout the state for Sun Day, May 3, 1978. Solar Action in Washington D.C., chose AERO as co-organizer for a meeting of Sun Day organizers in six states to discuss Sun Day activities and results and to plan for state meetings to discuss the barriers to solar energy development. AERO personnel participated (as regional and state organizer) in the first Solar Congress in Washington, D.C. and moderated one of the discussion groups at the Congress.

AERO staff conducted adult education classes on solar energy every week of the 1977-78 school year in Billings and Bozeman. AERO also presents numerous talks and slide shows at various con-

ferences throughout the region and consults with state government on renewable energy programs. AERO staff are designing renewable energy-related curricula for grades K-12 which will be completed in January 1979.

Several AERO members from Circle, MT have formed a "Greenhouse Team". They received training, partially funded through the Energy Division, at a workshop in New Mexico in September 1978. They will conduct workshops helping citizens learn to build solar attached greenhouses in Montana communities throughout the 1978-79 building season.

AERO plans to begin an intensive project helping communities in Montana to research, plan, initiate and utilize community-sized renewable energy systems. This work will be coordinated with other energy-related organizations and agencies in the state. A networking project will keep track of the renewable energy projects and activities of all state groups, and AERO will report on them in a monthly newsletter. AERO will also prepare information for use in the 1979 legislative session.

Publications produced in 1977-78 include a children's comic book/workbook (first of a series of eight), entitle *The Energy Adventures of Ernie an' Bud*; a young children's coloring book/workbook called *Sun Fun Coloring Book*; and an educational, four-poster panorama of a Montana landscape with many renewable energy systems in use, entitled *Mountain/Prairie Energy Vision*. AERO also publishes a bi-monthly newsletter, the *Sun Times*.

9.4. NEW WESTERN ENERGY SHOW

The New Western Energy Show was formed by the Alternative Energy Resources Organization in 1976 as a means of spreading information about renewable energy and energy conservation. Now an independent organization, the show is a touring group that combines renewable energy displays, panels, a portable library and a theater troupe that performs original musical theater material on the theme of renewable energy and energy conservation. To date the show has conducted two spring and three summer tours, making appearances in over 40 Montana cities and towns, in many schools and three national parks, plus individual contacts with civic groups and youth camps.

Both technical and theater staff constantly add to displays and develop new material so the show can continue to be fresh, entertaining and informative. In order to increase effectiveness and expand exposure, NWES is planning to produce regular radio and newspaper material, develop school curriculum, manufacture solar systems, publish, and train others to operate energy shows. NWES will tour schools through the 1978-79 academic year and may tour schools located on Indian reservations in the state. NWES will conduct a solar energy course for professionals (e.g., bankers, contractors, realtors) and will sponsor a technical conference on passive, earth-sheltered design. The show also may tour a large part of the country during the summer of 1979 and in addition plan for a renewable energy center. Publications include popular articles and *The Energy Show*, an energy story in play form for children with directions for production.

9.5. NORTHERN PLAINS RESOURCE COUNCIL

Organized in 1972, the Northern Plains Resource Council is an agricultually-based citizens organization concerned about the effects of large-scale energy and mineral industrialization on Montana. NPRC believes that large-scale industrialization will jeopardize the health of Montana's agriculture and therefore should be closely monitored. The Board of Directors, comprised of farmers and ranchers, determines NPRC policy.

During the past year at the federal level, NPRC worked for the passage of federal strip mine reclamation legislation. Two provisions in the bill of critical importance to agricultural people in eastern Montana are: 1) the requirement of written consent of the surface owner prior to leasing and strip mining of federal coal underlying private surface; and 2) protection for fragile alluvial valley floors. The Council also worked for passage of the Clear Air Act Amendments of 1977.

NPRC has been active in numerous energy issues at the state level, including the proposed legislation to create a Pacific Northwest regional power authority. Reservation of water for future agricultural needs is a high NPRC priority. Since 1975 NPRC has worked with the various conservation district and irrigation projects in the Yellowstone Basin in their efforts to reserve water, including participating in the water reservation hearings before the Board of Natural Resources and Conservation in 1977. NPRC continues to oppose Colstrip Units 3 and 4.

At the local level NPRC reviews energy development proposals. A large portion of NPRC's members belong to one of the Council's eleven local affiliated organizations: the Rosebud Protective Association, Tri-County Ranchers Association, McCone Agricultural Protection Organization, Three Corners Boundary Association, Bull Mountain Landowners Association, Wibaux Area Council, Yellowstone Basin Water Use Association, Alternative Energy Resources Organization, Sarpy Creek Protection Association, Stillwater Protective Association, and Valley Resource Council. The affiliates are involved in such issues as strip mine reclamation in Montana, transboundary air and water pollution impacts from the Canadian Poplar River power plants, water policy, and alternative ways of meeting Montana's future energy needs.

The Council's activities are based out of offices in Billings and Glendive. NPRC publishes a monthly newsletter called *The Plains Truth* and in addition, has printed special papers on strip mining in Montana, reclamation, and water.

9.6. MONTANA TRADE COMMISSION

The Montana Trade Commission is a non-profit, economic development corporation formed in 1974 by industry, agriculture and government representatives in Montana for purposes of expanding business and employment opportunities improving personal and per capita income and diversifying the state's economy in accordance with the state's social and environmental quality standards.

The Montana Trade Commission (MTC) is attempting to initiate a utility scale wind demonstration in northeastern Montana (Valley Industrial Park/Fort Peck Reservoir).

The utilities of the Northern Great Plains region are interested in testing and demonstrating wind turbine technology. Technical literature suggests that a substantial level of interest should exist in developing utility scale wind farms; however, it is highly doubtful that private sector utilities would financially commit themselves to a project of commercial scale without first completing an intermediary research and demonstration phase. Commercialization of wind technology and the rapidity of its acceptance within the private sector for commercial power generation is dependent upon the results of in-field, multi-unit demonstrations.

MTC has submitted a discussion paper to DOE which delineates site, technology, integration and cost factors and proposes a business construct for implementation of the program. DOE has not officially responded to the proposal.

Several utilities are interested in participating in the program, including Basin Electric Power Cooperative, Montana-Dakota Utilities, and Montana Power Company. Preliminary discussions with members of Montana Associated Utilities indicates that they would also be interested in participation. The Electric Power Research Institute of Palo Alto, California, has indicated a willingness to initiate a testing and monitoring program if the project is developed.

9.7. UTILITIES

This section primarily discusses innovative programs Montana's utilities are sponsoring in the areas of conservation and alternative energy development. Data concerning the electric energy generation and natural gas operations of the major utilities is presented in Section 2.

9.7.1. MONTANA POWER COMPANY

9.7.1.1. ENERGY CONSERVATION

Montana Power Company (MPC) is or has been involved in a number of public information efforts to promote energy conservation. These include distribution of various brochures; provision of technical advice and financial support on conservation-related programs of organizations such as 4-H and the Bozeman League of Women Voters' Children's puppet show; and provision of guest lecturers at all levels of Montana university and school units as well as presentations to general audiences. "How To With Pete" was a half-hour, do-it-yourself syndicated conservation program MPC promoted and sponsored on Montana television stations in 1977. The "Save Energy, Environment, Dollars" campaign, initiated in the spring of 1978, is a comprehensive informational and educational effort to encourage use of natural gas for home heating and discourage use of electric space heating. The campaign's goal is to reduce the rate of new electric installations by 50 percent. Additionally, MPC is working with the Energy Division on a residential energy audit program.

MPC vehicles are now intermediates and subcompacts and the company is continuing to study ways to improve energy conservation through management of its fleet.

In December 1978 MPC announced a proposal to the Public Service Commission to begin a loan program for homeowners for conservation and alternative energy measures.

9.7.1.2. ALTERNATIVE ENERGY

A residential alternative energy study is designed to obtain data concerning residential alternative energy production systems (primarily heating systems) and their impact on the MPC system. The project involves monitoring electrical demand and consumption to determine periods of supplemental energy needs in two solar-heated homes and one heat-pump equipped home. In another project, four houses in the Colstrip area have been equipped with electric resistance heating, a complete active solar system, a ceramic heat storage system, and a heat-pump system, respectively. This project is designed to obtain peak and energy data pertaining to the residential use of new types of heating systems and their impact on the MPC system. The company is also studying existing passive solar house designs to determine a possible architectural model suitable for siting in Montana.

In wind research MPC will contribute funds to a study being conducted by MERDI in the Livingston and/or Whitehall areas. The study will focus on small-scale wind technology; MPC's contribution will expand the effort to study possible utility-type wind sites in both areas. Work is also underway with a private consultant to determine the feasibility of small scale wind machines (1.5 kW) interfacing with the existing utility grid.

9.7.1.3. OTHER PROGRAMS

MPC is working with the Electric Power Research Institute and MERDI on the effects of the electric utility system upon the MHD inverter and the output of MHD on the electrical system.

MPC has begun a program to improve its load forecasting by using econometric modeling techniques. This will involve examination of the effects of cross-elasticity between the price of electricity and gas, population trends, and conservation. A load research study is designed to provide a data base for examining residential, commercial, industrial, and REA customer electrical use during system-wide peak as well as all other time periods.

There is a program underway to train consumer representatives utilizing new heat loss design calculations to more closely match furnace size to actual house heat loss. A separate project involves a study to retrofit existing furnace installations to increase seasonal operating efficiencies, although extensive safety examinations need to be done before full implementation.

9.7.2. GREAT FALLS GAS COMPANY

Great Falls Gas Company (GFG) began offering its customers insulation installation in the fall of 1976. The company has insulated about three percent of the residences in its service territory in the past two years. Since the company handles only about one-third of the jobs put out for bid, the program may have encouraged some 10 percent of total residential customers to adequately insulate their homes or businesses. Studies before and after insulating show an average savings of about 20 percent of heating demand.

GFG has contracted for an aerial thermographical survey of the houses within its system. The photos derived from the survey show the approximate amount of heat loss to help determine effective attic insulation in every structure. During the first three months the photos have been on display, over 15 percent of the company's customers have been in to see their home or business. As a result, customer requests for free insulation inspection have doubled. In 1979 the company is planning to acquire an infra-red camera so that two photos of each home can be taken which will pinpoint all heat loss areas of the house or structure. Customers can then use these photos to provide effective weatherization for their homes or businesses.

Selected company employees have had flue dampers retrofitted to their existing gas furnaces to measure the amount of savings of gas consumption. If the tests prove positive, GFG would advocate the use of such approved devices to its customers.

The company has begun a program to explain to customers, gas appliance dealers and builders the amount of savings expressed in dollars that consumers can save by purchasing new, energy-efficient gas ranges, water heaters, clothes dryers and heating equipment versus conventional gas appliances or electric appliances.

A subsidiary company, Montana Sun, Inc., has designed and installed eight solar projects in the GFG service area. The company will monitor the ongoing system efficiencies, maintenance characteristics, customer attitudes toward solar and other pertinent information. By gaining solar experience over the next few years, the company believes it will be in a more favorable position to aid customers in this area as solar economics become more favorable. Also, to stay abreast of solar industry developments, GFG is taking an active role with the American Gas Association's Solar Planning Committee.

GFG is participating in the Energy Division's home energy audit survey (see Section 5.3.2.2A).

9.7.3. MONTANA-DAKOTA UTILITIES (MDU)

MDU initiated a program in mid-1978 to promote experimental time-of-day electric rates for both residential and commercial customers. The differential between on-peak and off-peak rates provides an

incentive for moving as much energy usage as is practical to off-peak hours. The primary purpose of the experiment is to assist in the evaluation of this type of load management technique as a practical means of reducing peak capacity requirements in an area of low population density and minimal industrialization.

MDU has conducted a customer-related energy efficiency campaign for several years, providing both printed material and technical assistance. The company is also participating with the Energy Division in an extensive all-media campaign to provide computerized energy audit service to all residential utility customers in Montana (see Section 5.3.2.2A).

9.7.4. PACIFIC POWER AND LIGHT COMPANY (PP&L)

PP&L has proposed an innovative residential home weatherization program which is discussed further in Section 5.5.3.

9.7.5. WASHINGTON WATER POWER COMPANY

Washington Water Power Company owns and operates a 397 hydroelectric generating facility at Noxon, Montana on the Clark Fork River. In addition WWP is a ten percent owner of the Colstrip Units 3 and 4 project. This utility does not market power in Montana.

9.7.6. RURAL ELECTRIC COOPERATIVES

Twenty-five rural electric cooperatives (REC's) provide service in Montana in the areas shown in Figure IX-A (page 131). Table IX-1 (page 132) indicates the office location, power supplier and amount of power sold by each cooperative in 1977.

As noted in Table IX-1, all of the cooperatives obtain their power supply from one or more larger utilities or organizations, including Bonneville Power Administration, Montana Power Company, Upper Missouri Electric Generation and Transmission Cooperative, and Central Montana Electric Generation and Transmission Cooperative. Cooperatives which receive power from Upper Missouri and Central Montana G and T, respectively, are members of these power supply cooperatives. Sixteen of the cooperatives, as noted in Table IX-1, are also members of Basin Electric Power Cooperative, which is headquartered in Bismarck, North Dakota. All of the cooperatives are members of Montana Associated Utilities, Inc., the statewide REC organization headquartered in Great Falls.

9.7.7. UTILITY COORDINATING ORGANIZATIONS

Montana utilities are represented in at least three regional utility organizations. The Western Systems Coordinating Council (WSCC), a regional subdivision of the National Electric Reliability Council, was established by the electric utility industry to promote reliable operation of interconnected power systems by the coordination of planning and operation of generating and interconnected transmission facilities. The Council provides a formal mechanism for data exchange and for conducting regional studies to increase system reliability. The area covered by WSCC includes all or part of fourteen western states and British Columbia, including Montana west of the east-west transmission break at Fort Peck and Yellowtail.

The Northwest Power Pool, a subunit of WSCC, is a group of utilities and agencies in the Northwest region which voluntarily operate their power systems on a coordinated basis. At the time the pool

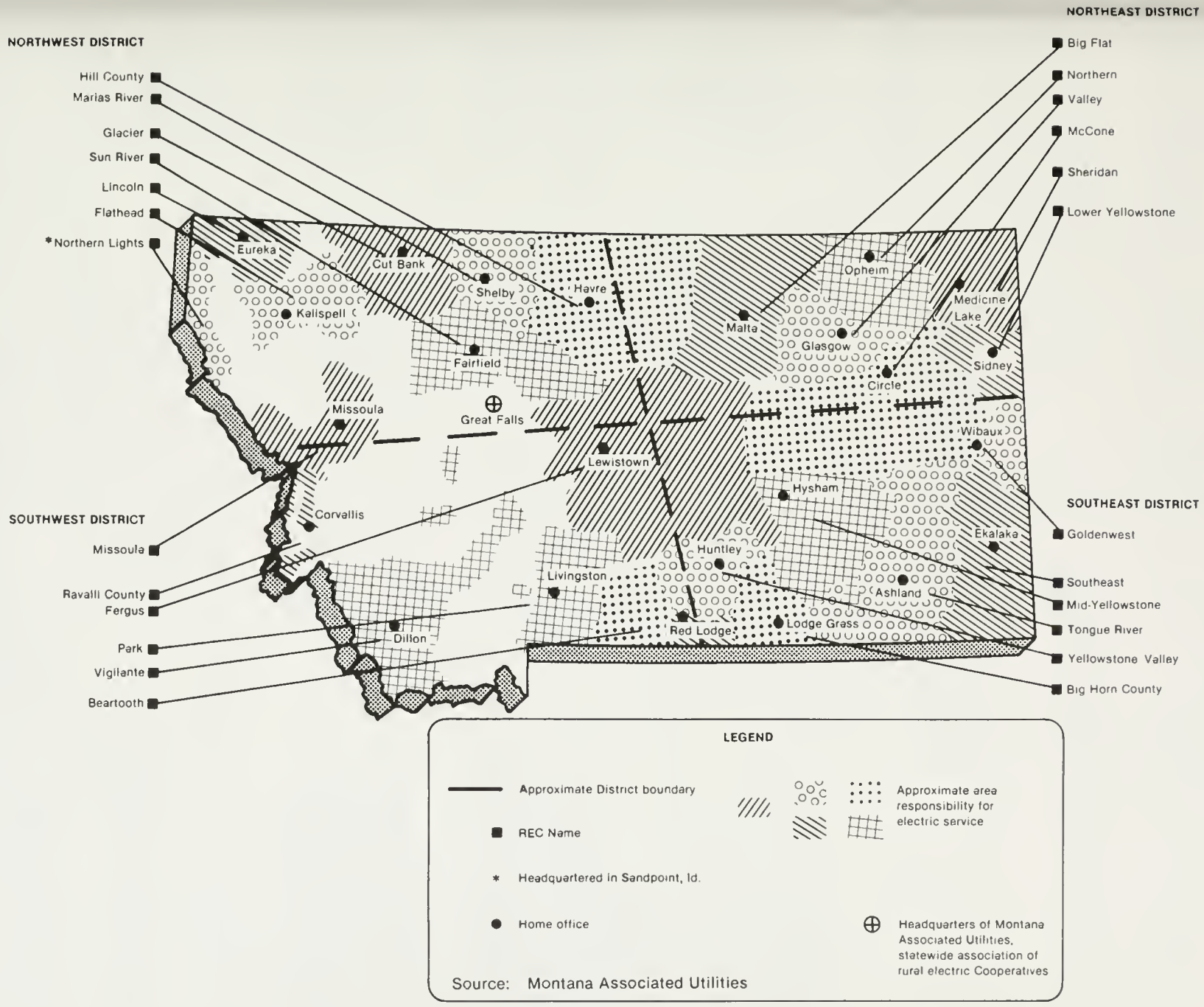


FIGURE IX-A MONTANA'S ELECTRIC COOPERATIVES

(by name, district, home office, approximate coverage area)

was formed in 1942, two integrated power networks were essentially linked only by an intertie between Washington Water Power Company and the Montana Power Company in northern Idaho. Since the intertie was not considered strong enough to make large power transfers between the networks, the pool used West Group and East Group designations.

The Pacific Northwest Utilities Conference Committee consists of 108 non-federal public agencies and five private utilities, including the Montana Power Company. Its purpose is to make estimates of loads and resources in the Pacific Northwest. The Committee's annual report, titled "Pacific Northwest Utilities Conference Committee WEST GROUP FORECAST of Power Loads and Resources," covers the subsequent ten-year period.

TABLE IX-1
MONTANA ELECTRIC COOPERATIVES

	Office Location[1]	Power Supplier[2]	Power Resale Sold in 1975 (KWH)
Northeast District			
Big Flat Electric Cooperative*	Malta	Cent. MT through BR	16,573,250
Northern Electric Cooperative*	Opheim	Cent. MT	27,200,411
Sheridan Electric Cooperative*	Medicine Lake	Upper MO	53,070,000
Valley Electric Cooperative*	Glasgow	Cent. MT	15,195,530
Lower Yellowstone REA*	Sidney	Upper MO	36,000,000
McCone Electric Cooperative	Circle	Upper MO, Cent. MT	57,039,000
Northwest District			
Northern Lights, Inc.	Sandpoint, Idaho	BPA	115,809,385
Lincoln Electric Cooperative	Eureka	BPA	no data available
Marias River Electric Cooperative*	Shelby	Cent. MT through BR	57,423,000
Glacier Electric Cooperative	Cut Bank	BR, BPA	110,027,307
Sun River Electric Cooperative*	Fairfield	Cent. MT	65,000,000
Hill County Electric Cooperative*	Havre	Cent. MT	44,048,193
Flathead Electric Cooperative	Kalispell	BPA	92,206,403
Southwest District			
Missoula Electric Cooperative	Missoula	BPA, MPC, WPPSS	86,000,000
Ravalli County Electric Cooperative	Corvallis	BPA	60,651,000
Vigilante Electric Cooperative	Dillon	BPA, MPC	68,843,190
Park Electric Cooperative*	Livingston	Cent. MT	23,311,410
Beartooth Electric Cooperative*	Red Lodge	Cent. MT	28,222,636
Fergus Electric Cooperative*	Lewistown	MPC	70,000,000
Southeast District			
Yellowstone Valley Electric Cooperative*	Huntley	Cent. MT	77,166,278
Big Horn County Electric Cooperative	Lodge Grass	MPC	33,151,400
Tongue River Electric Cooperative*	Ashland	Cent. MT	40,120,092
Southeast Electric Cooperative*	Ekalaka	Upper MO	13,197,281
Goldenwest Electric Cooperative*	Wibaux	Upper MO	9,449,394
Mid-Yellowstone Electric Cooperative*	Hysham	Cent. MT	22,750,000

Source: Montana Associated Utilities

[1]All offices are located in Montana, unless otherwise noted.

[2]Power supplier abbreviations are as follows: Central Montana Electric Generation and Transmission Cooperative (Cent. MT); Upper Missouri Electric Generation and Transmission Cooperative (Upper MO); Montana Power Company (MPC); Bonneville Power Administration (BPA); Bureau of Reclamation (BR); Washington Public Power Supply System (WPPSS).

*Member of Basin Electric Power Cooperative

9.8. INDIAN TRIBES

Like all residents, Montana's Native American population is confronted with the general impacts and benefits associated with energy-related development. However, tribal sovereignty over on-reservation activities, the presence of large fossil fuel deposits on a number of reservations, and the geographic proximity of several reservations to specific energy development plans have placed the tribes in a unique and centrally important position.

The Northern Cheyenne and Crow tribes in southeastern Montana own sizeable reserves of coal (as much as one-third of the state's total coal reserves according to some estimates). No mining has taken place on the Northern Cheyenne reservation and at the tribe's request the Secretary of the Interior suspended all coal leases and exploration permits issued on the reservation in the past. Both tribes are involved in litigations against the State of Montana concerning water rights to the Tongue and Bighorn rivers and other streams. Allocation of this water and other Yellowstone basin water has been under consideration by the Board of Natural Resources and Conservation under Montana's Water Use Act water reservation authority (see Section 5.3.1.). A number of large industrial water reservation requests for energy development purposes are involved in the allocation process. The Northern Cheyenne Tribe sought and received approval from the Environmental Protection Agency to redesignate its reservation to Class I air quality status. (The effect of the redesignation on the proposed Colstrip Units 3 and 4 generating plants is discussed in Section 10.1.) Existing coal mines in the area are planning to expand and two new mines are planned, one of which will border the reservation on the east (see Section 3.1.1.). The tribe believes that on-reservation impacts must be addressed and that the tribe should be involved in environmental impact analyses relating to the Northern Cheyenne people and resources.

Coal development and the Crow tribe is the subject of a recent environmental information study prepared by the Bureau of Indian Affairs (see Section 7.2.1.). Westmoreland Coal company is mining coal in the Ceded Area and the tribe is presently evaluating various options for further coal mining and related energy development. In July 1978 the tribe brought suit against Montana's coal severance tax, and gross proceeds tax, contending that the taxes should not apply to coal mined on the reservation.

The Fort Peck Tribe is considering seeking a Class I air quality designation for its reservation located in northeastern Montana and bordering the Missouri River to the south. Energy-related proposals in the area which could be affected by this action or other aspects of tribal influence include Canadian coal development on the Poplar River just north of the Montana border (see Section 5.2.1.), the Northern Border natural gas pipeline (see Section 3.1.6.1.), Circle West (see Section 3.1.4.1.) Farmers Potash (see Table V-4) and energy development at Glasgow Air Force Base.

The Confederated Salish and Kootenai Tribes have also announced their intention to seek a Class I air quality designation. Their reservation, located in northwest Montana, has been included in preferred route proposals for both the Northern Tier pipeline and the 500 kilovolt transmission lines which would carry power from Colstrip Units 3 and 4 to the Pacific Northwest. The tribes have refused to permit either facility to cross reservation land. Montana Power Company operates the Kerr hydroelectric dam, which is located on the reservation. In 1976 the utility and the tribes each filed applications with the Federal Energy Regulatory Commission (FERC) for licenses to continue operating the facility. FERC has not taken action on the applications to date. In addition, MPC has been considering construction of two new hydroelectric facilities at sites on the reservation known as Buffalo Rapids 2 and 4, as well as expansion of Kerr Dam. The utility and the tribes have been unable to reach agreement on management and ownership of the facilities and planning has been halted since 1975 as a result.

The policy positions, litigations and other events summarized above indicate the important influence Montana's Indian tribes are exerting on energy-related development. The positions of the tribes discussed herein reflect concerns voiced by many Montanans and conflict with others. There clearly is a need for dialogue and definition of the interests, rights and responsibilities of the tribes and the State of Montana in relation to energy issues.

10

ENERGY ISSUES

A STATUS SUMMARY

The purpose of this section is to identify and briefly describe the current status of a few of the major energy issues affecting the State of Montana, including the Colstrip Units 3 and 4 project, the challenge to the coal severance tax and others.

10.1 COLSTRIP UNITS 3 AND 4

In June 1978 the Environmental Protection Agency (EPA) denied a construction permit for Colstrip Units 3 and 4. EPA ruled that the sulfur dioxide emissions from the units would violate air quality on the nearby Northern Cheyenne Indian Reservation. The Northern Cheyenne requested and received a Class I air quality designation from EPA in August 1977. In September 1977 EPA determined that Colstrip 3 and 4 must have a prevention of significant deterioration (PSD) of air quality permit under the Clean Air Act Amendments of 1977.

The Ninth Circuit Court of Appeals in San Francisco is considering three suits relating to Colstrip Units 3 and 4: 1) Montana Power Company and the other owners of Units 3 and 4 have appealed the EPA permit denial to both the EPA administrator in Washington, D.C. and the Ninth Circuit Court. MPC has filed a motion requesting the court to enjoin EPA from taking any enforcement action should MPC begin construction of the units. The Northern Cheyenne and the Northern Plains Resource Council (NPRC) are intervenors in the case; 2) the court is also considering an appeal by EPA, NPRC and the Northern Cheyenne to overturn a February 1977 federal District Court ruling which determined that PSD requirements do not apply to Colstrip 3 and 4 because construction of the units had already commenced before PSD became law; 3) EPA's decision to declare the Northern Cheyenne Reservation a Class I area has been challenged in a separate suit also before the Ninth Circuit Court. MPC is an intervenor in this case.

Other suits affecting the plants have yet to be resolved at the state level. In March 1978, a Helena district court judge voided the certificate of environmental compatibility and public need that the Board of Natural Resources and Conservation issued to the project in July 1976. The judge ruled that the certificate was based upon public hearings which were marred with procedural errors. The utilities appealed the decision to the Montana Supreme Court which subsequently lifted the lower court's injunction on construction; oral arguments on the lower court's decision were heard in October 1978.

The Board of Health and Environmental Sciences granted a construction permit, which was accompanied by certain performance requirements, for Colstrip 3 and 4 under the Montana Clean Air Act in January 1978. NPRC's appeal of this decision has been dismissed from Helena District Court, but the Council has made a further appeal to the Montana Supreme Court.

Montana Power Company is having technical discussions with EPA concerning the results of the agency's atmospheric models in order to define the emission requirements the plants must meet if the application of PSD statutes is upheld and to determine whether the emission control system can be modified to bring the plants into compliance. MPC has also stated that it is investigating the possibility of building only Unit 3 and either keeping its 30 percent share and buying into a share of a Pacific Northwest nuclear plant or revising contracts to gain 60 percent ownership of Unit 3. Unit 3 could be brought on line about four years from beginning of construction. In addition, the company is studying the possibility of relocating the entire project in another state.

If both units are eventually constructed in Montana, ownership arrangements may be altered to allow 21 of Montana's electric power cooperatives represented by Central Montana G & T and Upper

Missouri G & T to purchase a 10 percent share, or 140 megawatts. Portland General Electric Company presently owns 20 percent of the project, but has indicated it would relinquish 10 percent, thereby making the power available to the cooperatives. The cooperatives would also receive a share of the transmission facilities, but no formal agreement will be made until the project is approved.

10.2 COAL SEVERANCE TAX CHALLENGE

Four coal mining companies operating in Montana (Decker Coal Co., Westmoreland Resources Inc., Western Energy Co., and Peabody Coal Co.) paid their first quarter 1978 Montana coal severance tax under protest. The companies and a number of their utility customers have since filed two suits in Helena's First District court which challenge the constitutionality of the tax. The suits also request that the State of Montana be required to deposit the protested revenues in a special fund which is to be retained until the suit is resolved. The protest and subsequent suits are based on the following causes of action: 1) the tax is not fairly related to the benefits taxpayers derive from the State of Montana and it discriminates against and unduly burdens interstate commerce; 2) federal energy and air quality acts and policies have stripped the states of their traditional power to levy severance taxes on coal; 3) federal law regulating proceeds derived from coal mining pursuant to federal leases preempts any state legislation in the area, including taxation.

The suit is an important test of the state's authority to tax goods and activities within its jurisdiction. Arguments prepared by the state in defense of the tax are summarized as follows. Since the tax is imposed on each ton of coal produced in Montana (excepting the first 20,000 tons of annual production which is granted to all producers), discrimination would not appear to be a central issue. Also, legal precedent indicates that goods remain a part of the general mass of property in a state until they have been shipped or entered with a common carrier. Concerning the second cause of action, courts can render independent judicial interpretations which weigh the benefits of local control against competing national interests if Congress is silent on the subject. The policies and legislation cited by the plaintiffs encourage use of low sulfur coal, but they do not concern state taxation. Further, there is no precedent where a tax has been struck down because it makes implementation of federal policies more costly.

According to the federal Mineral Lands Leasing Act of 1920, states retain the authority to tax the output of mines subject to federal leases. The third cause of action therefore does not appear to have a legal basis.

At present rates of coal production, the protested revenues total approximately $5.47 million for the first quarter and $11 million for the second quarter. The Governor, in consultation with the Attorney General's office, determined that under current Montana laws the protested revenue need not be held in escrow and may be spent in the normal course of state business while the suits are under consideration.

In early September 1978 the Attorney General filed a motion to dismiss the entire case, stating that the plaintiffs have failed to state a claim upon which relief can be granted. This motion will be argued during the latter part of 1978. However, if the appeal process is pursued to its full extent, the case may take several years to resolve.

10.3 NUCLEAR INITIATIVE

Initiative No. 80, approved in the November 1978 election, gives Montana voters the right to approve or reject any proposed nuclear power plants of 50 MW or greater size by initiative or referendum. Voter aproval is required in addition to evaluation procedures mandated in the Montana Major Facility Siting Act.

The law also requires the Board of Natural Resources and Conservation, prior to certification of a nuclear facility, to find that: 1) provision is made for full financial liability for compensating victims of any accidents; 2) all emergency systems, including emergency core cooling systems, will not fail "by the laboratory testing of substantially similar physical systems in operation"; 3) there is no reasonable chance radioactive materials or waste will harm present or future generations "due to imperfect storage techniques, earthquakes or other acts of God, theft, sabotage, acts of war or other social instabilities, or whatever other causes..."; and 4) a 30 percent bond has been posted to insure cleanup of decommissioned radioactive facilities at the owner's expense. The governor is required to annually publish evacuation and emergency medical aid plans.

In September 1978 the initiative survived a legal challenge in the Montana Supreme Court. The suit contended that the initiative was incorrectly described on the November ballot because it was not presented as a ban on nuclear power in Montana. The suit further contended that, in fact, the stringent requirements of the initiative would ban future nuclear plants in the state. The Supreme Court disagreed, holding that the description of the initiative on the ballot was proper, but noted that the ruling should not be construed as a statement on the constitutionality of the measure.

10.4 COAL SLURRY PIPELINES

In July 1978 Congress defeated a bill that would have granted the power of eminent domain for right-of-way acquisition to coal slurry pipeline enterprises. The issue of states' water rights, which some felt were jeopardized by the bill, was a major factor in the measure's overwhelming defeat. Although surface water rights seemed adequately protected there was considerable opposition to the bill on the grounds that rights concerning underground aquifers that cross state boundaries were not clearly spelled out. Railroad officials also lobbied heavily against the bill, arguing that it would create "inequitable" competion and cause them serious harm.

At the request of various Congressional committees, the Office of Technology Assessment conducted a study entitled, *Coal Slurry Pipelines*, which was released in March 1978. Three major sets of policy questions were addressed in this publication. The first involves the desirability from social, economic, and environmental standpoints of developing a coal slurry pipeline industry. The second concerns the extent to which present regulatory and institutional arrangements would have to be altered to provide for the allocation of coal traffic between pipelines and railroads in a way that would represent the least cost to society. The third concerns the balance of federal and state control over such areas as water resource allocation, land ownership and local environments, and how conflicting regional interests might be resolved.

The coal slurry bill is expected to be reintroduced in 1979. It should be noted that coal slurry is not recognized as a beneficial use of water in Montana.

10.5 EXPORT PREFERENCE POLICY

In his energy message to the 1977 Legislature, Governor Judge stated that, "The debate concerning load-center conversion versus mine-mouth conversion has been heated and prolonged in our state. I believe that Montana should continue to encourage load-center conversion of our coal. Conversion within Montana should be for Montana needs..."

Coal or coal-derived energy is now transported by three methods: slurry pipeline, unit train and electrical transmission lines. The Northern Great Plains Resource Program (1974) surveyed the comparative costs of energy transportation as follows:

Form of energy transport	Likely Cost Range for Western States (cents/million B.T.U. of primary energy/ 100 miles)
Slurry Pipeline	1.0-5.0
Unit Train	2.5-4.0
Electricity	2.8-9.0

In recent years, the demand for low-sulfur western coal (vs. higher sulfur midwestern coal) has supported the rail transportation costs for such resources. Also, because of load center inability to build plants capable of meeting air quality standards, several Northern Great Plains (NGP) mine-mouth generating plants have proven that they are economically competitive in the energy export market. However, in addition to cost differentials, there are important environmental factors which must be considered when comparing mine-mouth vs. load center plants.

For example, coal-fired power plants emit particulates (fly ash containing heavy metals), sulfur dioxide and other substances. The Colstrip area has already been designated as a non-attainment area by the EPA because of repeated particulate level violations. It is possible that future coal mine expansions near Colstrip and possibly in other coal mining areas in Montana will preclude coal-fired plants because mine operations alone will contribute the maximum incremental increase of certain substances allowed under federal regulation.

Water is a precious commodity on the arid high plains of eastern Montana, and coal plants, especially generating plants, are highly water consumptive. The Western States Water Council lists the consumptive water requirements of a steam-electric coal plant as 200 to 1,350 pounds of water per million Btu's. The requirements for a coal slurry pipeline are listed as 0 to 110 pounds of water per million Btu's. The in-state water requirments for unit-train transport would, of course, be minimal.

Social implications must also be considered. Eastern Montana has a strong agricultural heritage. Towns in the coal-bearing areas undergo considerable population influx and social change to accommodate the mining industry. Forsyth, Colstrip, Hardin and Ashland were all once quiet towns with renewable resource based economies. They now are or will soon become rapidly growing towns with economies that are largely based on mining a non-renewable resource.

Construction crews and plant personnel contribute an additional burden to both the "boom" and the "bust" phases of the cycle. Heavily urbanized areas of the country where the power is being used are often better able to accommodate rapid population fluctuations. Also, employment in portions of eastern Montana has already been increased by mine and mine-related jobs. Industrial development may not ease unemployment because new people move to Montana whenever significant employment opportunities rapidly open up.

Methods for implementing Montana's export preference policy are under study; options include actions to remove existing encouragements to in-state plants, removing existing impediments to coal export, encouraging coal export, and discouraging in-state power plants.

ENERGY-RELATED AGENCIES AND ORGANIZATIONS

STATE AGENCIES

Governor's Office
Room 204, State Capitol
(406) 449-3111

Lieutenant Governor's Office
State Capitol
(406) 449-3773

Montana Department of Natural Resources and Conservation
32 South Ewing
Helena, MT 59601
(406) 449-3712

Energy Division
25 South Ewing
Helena, MT 59601
(406) 449-3780
(406) 449-3940

Water Resources Division
32 South Ewing
Helena, MT 59601
(406) 449-2872

Oil and Gas Conservation Division
25 South Ewing
Helena, MT 59601
(406) 449-2611

Montana Department of State Lands
1625 Eleventh Avenue
Helena, MT 59601
(406) 449-2074

Northern Powder River Basin EIS Team
Room 221, Power Block
7 West Sixth Avenue
Helena, MT 59601
(406) 449-2711

Montana Department of Public Service Regulation
1227 Eleventh Avenue
Helena, MT 59601
(406)449-3494

Montana Department of Community Affairs
1424 Ninth Avenue
Helena, MT 59601
(406) 449-3494

Coal Board
1424 Ninth Avenue
Helena, MT 59601
(406) 449-2400

Planning Division
1424 Ninth Avenue
Helena, MT 59601
(406) 449-3757

Human Resources Development Councils (HRDCs)
c/o Human Resources Division
1424 Ninth Avenue
Helena, MT 59601
(406) 449-3420

Montana Department of Highways
Highway Building
Sixth and Roberts
Helena, MT 59601
(406) 449-2482

Montana Department of Health & Environmental Sciences
Cogswell Building
Helena, MT 59601
(406) 449-2544

Air Quality Bureau
Room 224, Cogswell Bldg.
Helena, MT 59601
(406) 449-3454

Water Quality Bureau
555 Fuller
Helena, MT 59601
(406) 449-2406

Solid Waste Management Bureau
1400 Eleventh Avenue
Helena, MT 59601
(406) 449-2821

Occupational Health Bureau
Room 224, Cogswell Bldg.
Helena, MT 59601
(406) 449-3454

Montana Department of Fish and Game
1420 East Sixth Avenue
Helena, MT 59601
(406) 449-3186

Montana Department of Revenue
Sam W. Mitchell Building
Helena, MT 59601
(406) 449-2460

Montana Department of Social & Rehabilitation Services
SRS Building
111 Sanders
Helena, MT 59601
(406) 449-5622

Montana Environmental Quality Council
1228 Eleventh Avenue
Helena, MT 59601
(406) 449-3742

Montana Bureau of Mines and Geology
Butte, MT 59701
(406) 792-8321

Montana State University
Bozeman, MT 59717
(406) 994-0211

University of Montana
Missoula, MT 59801
(406) 243-0211

REGIONAL ORGANIZATIONS

Western Governors' Policy Office
2500 Stapleton Plaza
3333 Quebec
Denver, CO 80207
(303) 399-9957

Western Interstate Energy Board
2500 Stapleton Plaza
3333 Quebec
Denver, CO 80207
(303) 837-5851

Western Solar Utilization Network (Western SUN)
P.O. Box 3621
Portland, OR 97208
(503) 234-3361

Old West Regional Commission
228 Hedden-Empire Building
Billings, MT 59101
(406) 657-6665

Missouri River Basin Commission
Suite 403, 10050 Regency Circle
Omaha, NB 68114
(402) 397-5714

Pacific Northwest River Basins Commission
P.O. Box 908
Vancouver, WA 98660

FEDERAL AGENCIES

U.S. Department of Energy
Office of Environmental Information Systems
Mail Station E-201
Washington, D.C. 20545
(301) 353-4664

Bonneville Power Administration
District Office, Hwy. 2E
Kalispell, MT 59901
(406) 755-6202

Bureau of Indian Affairs
316 N. 26th Street
Billings, MT 59101
(406) 657-6145

Bureau of Land Management
Energy Minerals Rehabilitation Inventory
and Analysis (EMRIA)
316 N. 26th St.
Billings, MT 59101
(406) 657-6474

Bureau of Reclamation
Upper Missouri Region
P.O. Box 2553
Billings, MT 59103
(406) 657-6514

Fish and Wildlife Service
Western Energy and Land Use Team (WELUT)
Fed. Bldg., Room 206
301 S. Howes St.
Fort Collins, CO 80521
(303) 221-2040

Geological Survey
P.O. Box 2550
Billings, MT 59103
(406) 657-6185

Office of Surface Mining,
Reclamation and Enforcement
Old Post Office - Downtown
1923 Stout Street, Room 270
Denver, CO 80202
(303) 837-5421

Army Corps of Engineers
Seattle District
P.O. Box C-3755
Seattle, WA 98124
(206) 764-3690

Forest Service, Surface Environment
and Mining (SEAM)
145 Grand Avenue
Billings, MT 59102
(406) 657-6468

Environmental Protection Agency
Federal Building
Helena, MT 59601
(406) 449-5432

LOCAL GOVERNMENT

Montana League of Cities and Towns
P.O. Box 1704
Helena, MT 59601
(406) 442-8768

PRIVATE ORGANIZATIONS

Montana Energy & MHD Research &
Development Institute (MERDI)
P.O. Box 3809
Butte, MT 59701
(406) 494-6100

National Center for Appropriate Technology
P.O. Box 3838
Butte, MT 59701
(406) 723-6533

Alternative Energy Resources Organization (AERO)
435 Stapleton Bldg.
Billings, MT 59101
(406) 259-1958

AERO-West
323 W. Alder
Missoula, MT 59801
(406) 728-0015

New Western Energy Show
Power Block
Helena, MT 59601
(406) 443-7272

Northern Plains Resource Council
Stapleton Building
Billings, MT 59101
(406) 248-1154

Montana Trade Commission
Suite 415, Power Block
Helena, MT 59601
(406) 443-7910

UTILITIES

Montana Power Company
40 E. Broadway
Butte, MT 59701
(406) 723-5421

Great Falls Gas Company
P.O. Box 2229
Great Falls, MT 59403
(406) 761-7100

Montana-Dakota Utilities Co.
(Billings Office) 2603 2nd Avenue
Billings, MT 59101
(406) 245-4161

Pacific Power and Light Company
(Kalispell Office) P.O. Box 250
Kalispell, MT 59901
(406) 755-7461

Washington Water Power Company
P.O. Box 3727
Spokane, WA 99220
(509) 489-0500

Basin Electric Power Cooperative
1717 E. Interstate Avenue
Bismarck, ND 58501
(701) 223-0441

Central Montana Electric Generation
and Transmission Cooperative
928 Broadwater
Billings, MT 59102
(406) 248-7936

Upper Missouri Electric Generation
and Transmission Cooperative
P.O. Box 1069
Sidney, MT 59270
(406) 482-4100

Montana Associated Utilities, Inc.
1920 Tenth Avenue South
Great Falls, MT 59401
(406) 454-1521

INDIAN TRIBES

Northern Cheyenne Research Project
P.O. Box 388
Lame Deer, MT 59043
(406) 477-6278

Crow Office of Natural Resources
and Development
P.O. Box 413
Crow Agency, MT 59022
(406) 638-2685

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7909786 almanac.
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ENERGY DIVISION
32 SOUTH EWING

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